

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 U 1
Edition : 01.12.89
Replaces : 02.10.89
Test oil : ISO-4113

Combination no. : 0 403 446 228

Injection pump
Pump designation : PES6MW100/320RS1182
EP type number : 0 413 406 167
Governor
Governor design. : RQV350...1300MW46-20
Governor no. : 0 420 083 192

Cust. part no. : 1815267C91

Customer-spec. information
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 156.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

AD1

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Phasing :
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 11.90...12.00

Del.quantity cm³/ : 11.9...12.1

100 s: (11.7...12.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 6.4...6.6
Del.quantity cm³/ : 1.8...2.2
100 s: (1.5...2.4)
Spread cm³ : 0.3
100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1460
travel mm : 9.10...9.50
2nd speed rpm : 1350
travel mm : 8.30...8.50
3rd speed rpm : 550
travel mm : 3.10...3.70
4th speed rpm : 350
travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 900
Aneroid pressure h: 800
Del.quantity : 119.0...121.0
1000 : (117.0...123.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 43...51

Testing:
1st rack travel in: 10.90
Speed rpm : 1360...1380
2nd rack travel in: 4.00
Speed rpm : 1480...1490
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 9...17
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION
Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 800
Rack travel mm : 11.90...12.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.70...10.80
2nd pressure hPa : 165
Rack travel in m: 10.90...11.00
3rd pressure hPa : 360
Rack travel in m: 11.40...11.70

START CUT-OUT

Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm : 1300

Del.quantity cm³/ : 120.0...123.0
1000 s: (117.5...125.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 99.5...101.5
1000 s: (97.5...103.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1360...1380

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.40...6.60
Del.quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: IHC # 1815267C91
Only perform pump setting with original
overflow valve without IH hose and
restrictor 1.2 mm diameter.
Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 U 2
Edition : 12.01.90
Replaces : 02.10.89
Test oil : ISO-4113

Combination no. : 0 403 446 229

Injection pump
Pump designation : PES6MW100/320RS1182
EP type number : 0 413 406 167
Governor
Governor design. : RQV350...1200MW64-1
Governor no. : 0 420 083 193

Cust. part no. : 1815224C91

Customer-spec. information
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 164.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

A03

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Phasing :
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200
Rack travel in mm : 11.90...12.00
Del.quantity cm³/ : 11.9...12.1
100 s: (11.7...12.3)
Spread cm³ : 0.3
100 s: (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 6.2...6.4
Del.quantity cm³/ : 1.4...1.8
100 s: (1.1...2.0)
Spread cm³ : 0.3
100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350
travel mm : 8.30...8.50
2nd speed rpm : 1460
travel mm : 9.10...9.50
3rd speed rpm : 550
travel mm : 3.10...3.70
4th speed rpm : 350
travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1200
Aneroid pressure h: 800
Del.quantity : 119.5...121.5
1000 : (117.5...123.5)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 43...51

Testing:

1st rack travel in: 10.90
Speed rpm : 1255...1275
2nd rack travel in: 4.00
Speed rpm : 1375...1385
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.3

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.20...6.40

CONSTANT REGULATION

Speed rpm : 360...450

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200
Rack travel in m: 11.90...12.00
2nd speed rpm : 800
Rack travel in m: 12.40...12.50
3rd speed rpm : 1000
Rack travel in m: 11.90...12.00
4th speed rpm : 900
Rack travel in m: 12.20...12.30

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 230
Rack travel mm : 11.00...11.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.80...10.90
2nd pressure hPa : 400
Rack travel in m: 11.70...12.00
3rd pressure hPa : 800
Rack travel in m: 12.40...12.50

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 800
Del.quantity cm³/ : 126.0...130.0
1000 s: (124.0...132.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 99.0...101.0
1000 s: (97.0...103.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1255...1275

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.20...6.40
Del.quantity cm³/ : 14.0...18.0
1000 s: (11.5...20.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: IHC # 1815224C91

Only perform pump setting with original overflow valve without IH hose and restrictor 1.2 mm diameter. Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 V
Edition : 01.12.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 446 230

Injection pump
Pump designation : PES6MW100/320RS1185
EP type number : 0 413 406 170
Governor
Governor design. : RQV350...1200MW64-2
Governor no. : 0 420 083 194

Cust. part no. : 1815225C91

Customer-spec. information
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 201.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

A05

Test pressure, bar: 30...32

Prestroke mm : 3.75...3.85
: (3.70...3.90)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Phasing :
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 14.00...14.10

Del.quantity cm3/ : 14.2...14.4
100 s : (14.0...14.6)

Spread cm3 : 0.3
100 s : (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 6.0...6.2
Del.quantity cm3/ : 1.4...1.8
100 s : (1.1...2.0)
Spread cm3 : 0.3
100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350
travel mm : 8.30...8.50
2nd speed rpm : 1460
travel mm : 9.10...9.50
3rd speed rpm : 550
travel mm : 3.10...3.70
4th speed rpm : 350
travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1200
Aneroid pressure h: 800
Del.quantity : 142.5...144.5
1000 : (140.5...146.5)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 42...50

Testing:
1st rack travel in: 13.00
Speed rpm : 1265...1285
2nd rack travel in: 4.00
Speed rpm : 1415...1425
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 9...17
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION
Speed rpm : 360...450

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 14.00...14.10
2nd speed rpm : 800
Rack travel in m: 14.40...14.60
3rd speed rpm : 1150
Rack travel in m: 14.10...14.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 200
Rack travel mm : 11.50...11.60

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...10.70
2nd pressure hPa : 450
Rack travel in m: 13.30...13.60
3rd pressure hPa : 800
Rack travel in m: 14.40...14.60

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm : 800
Del.quantity cm3/ : 151.0...155.0
1000 s: (149.0...157.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 98.0...100.0
1000 s: (96.0...102.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 1265...1285

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.00...6.20
Del.quantity cm3/ : 14.0...18.0
1000 s: (11.5...20.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:
: IHC # 1815225C91

Only perform pump setting with original
overflow valve without IH hose and
restrictor 1.2 mm diameter.
Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 81
 Edition : 02.01.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 231
 Injection pump
 Pump designation : PES6MW100/720RS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RQV300...1400MW48-8
 Governor no. : 0 420 083 175

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 125.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 715 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00

A07

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.90...11.00

Del.quantity cm3/ : 7.5...7.7

100 s: (7.3...7.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...8.3

Del.quantity cm3/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1550

travel mm : 9.20...9.60

2nd speed rpm : 1450

travel mm : 8.30...8.50

3rd speed rpm : 550

travel mm : 2.80...3.40

4th speed rpm : 300

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1450

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 49...57

Testing:

1st rack travel in: 9.90
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1535...1565
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.0

Testing:

Speed rpm : 100
Minimum rack travel: 9.50
Speed rpm : 300
Rack travel in mm : 7.80...8.30

TORQUE CONTROL

Dimension a mm : 1.50
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.90...11.00
2nd speed rpm : 750
Rack travel in m: 12.10...12.30
3rd speed rpm : 950
Rack travel in m: 11.80...12.10
4th speed rpm : 1200
Rack travel in m: 11.00...11.30

START CUT-OUT

Speed 1/min : 200 (230)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 74.5...77.5
1000 s: (72.0...80.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

A08

Speed rpm : 100
Del.quantity cm³/ : 80.0...90.0
1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...8.30
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 55
Edition : 02.10.89
Replaces : 15.08.89
Test oil : ISO-4113

Combination no. : 0 403 446 231

Injection pump
Pump designation : PES6MW100/720RS1144-
1
EP type number : 0 413 406 159
Governor
Governor design. : RQV300...1400MW48-8
Governor no. : 0 420 083 175

Customer-spec. information
Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 125.0
Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 715 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.90...11.00

Del.quantity cm3/ : 7.5...7.7

100 s: (7.3...7.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0
Rack travel in mm : 7.8...8.3
Del.quantity cm3/ : 0.9...1.3
100 s: (0.6...1.5)
Spread cm3 : 0.3
100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1550
travel mm : 9.20...9.60
2nd speed rpm : 1450
travel mm : 8.30...8.50
3rd speed rpm : 550
travel mm : 2.80...3.40
4th speed rpm : 300
travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1450
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1400
Del.quantity : 75.0...77.0
1000 : (73.0...79.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 49...57

Testing:
1st rack travel in: 9.90
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1535...1565
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.0

Testing:
Speed rpm : 100
Minimum rack travel: 9.50
Speed rpm : 300
Rack travel in mm : 7.80...8.30

TORQUE CONTROL
Dimension a mm : 1.50
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.90...11.00
2nd speed rpm : 750
Rack travel in m: 12.10...12.30
3rd speed rpm : 950
Rack travel in m: 11.80...12.10
4th speed rpm : 1200
Rack travel in m: 11.00...11.30

START CUT-OUT

Speed 1/min : 200 (230)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm3/ : 74.5...77.5
1000 s: (72.0...80.0)
Spread cm3 : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.90
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 80.0...90.0
1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...8.30
Del.quantity cm3/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 80
Edition : 02.01.90
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 446 232

Injection pump
Pump designation : PES6MW100/72DRS1144
EP type number : 0 413 406 138
Governor
Governor design. : RQV300...1400MW48-11
Governor no. : 0 420 083 190

Customer-spec. information
Customer : MB-NFZ

Engine : OM366A

1st version kW : 125.0
Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ : 7.5...7.7

100 s : (7.3...7.9)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...8.3

Del.quantity cm³/ : 0.9...1.3

100 s : (0.6...1.5)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1550

travel mm : 9.20...9.60

2nd speed rpm : 1450

travel mm : 8.30...8.50

3rd speed rpm : 550

travel mm : 2.80...3.40

4th speed rpm : 300

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1450

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 48...56

Testing:

1st rack travel in: 9.90
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1530...1560
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.0

Testing:

Speed rpm : 100
Minimum rack travel: 9.50
Speed rpm : 300
Rack travel in mm : 7.80...8.30

TORQUE CONTROL

Dimension a mm : 0.60
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.90...11.00
2nd speed rpm : 800
Rack travel in m: 11.50...11.70
3rd speed rpm : 1000
Rack travel in m: 11.10...11.40

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm3/ : 67.5...70.5
1000 s: (65.0...73.0)
Spread cm3 : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 80.0...90.0
1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...8.30
Del.quantity cm3/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 69
 Edition : 02.10.89
 Replaces : 15.08.89
 Test oil : ISO-4113
 Combination no. : 0 403 446 232
 Injection pump
 Pump designation : PES6MW100/72ORS1144-
 1
 EP type number : 0 413 406 159
 Governor
 Governor design. : RQV300...1400MW48-11
 Governor no. : 0 420 083 190

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366A

1st version kW : 125.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ : 7.5...7.7

100 s: (7.3...7.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...8.3

Del.quantity cm³/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1550
 travel mm : 9.20...9.60

2nd speed rpm : 1450
 travel mm : 8.30...8.50

3rd speed rpm : 550
 travel mm : 2.80...3.40

4th speed rpm : 300
 travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1450

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:

1st rack travel in: 9.90
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1530...1560
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.0

Testing:

Speed rpm : 100
Minimum rack travel: 9.50
Speed rpm : 300
Rack travel in mm : 7.80...8.30

TORQUE CONTROL

Dimension a mm : 0.60
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.90...11.00
2nd speed rpm : 800
Rack travel in m: 11.50...11.70
3rd speed rpm : 1000
Rack travel in m: 11.10...11.40

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm³/ : 67.5...70.5
1000 s: (65.0...73.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 80.0...90.0
1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...8.30
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 S 4
Edition : 02.01.90
Replaces : 18.08.89
Test oil : ISO-4113

Combination no. : 0 403 446 233

Injection pump
Pump designation : PES6MW100/320RS1171
EP type number : 0 413 406 156
Governor
Governor design. : RQV300...1400MW97-1
Governor no. : 0 420 083 195

Customer-spec. information
Customer : RVI

Engine : MIDS060212C

1st version kW : 97.0
Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 033

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
: (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.50...9.60

Del.quantity cm3/ : 7.5...7.7

100 s: (7.3...7.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.50...5.70

Del.quantity cm3/ : 1.4...1.8

100 s: (1.1...2.0)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1570
travel mm : 9.20...9.60

2nd speed rpm : 1450
travel mm : 8.30...8.50

3rd speed rpm : 500
travel mm : 2.80...3.40

4th speed rpm : 300
travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1400
Del.quantity : 75.0...77.0
1000 : (73.0...79.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:

1st rack travel in: 8.50
Speed rpm : 1460...1470
2nd rack travel in: 4.00
Speed rpm : 1565...1595
4th rack travel in: 1700
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 3.9

Testing:
Speed rpm : 200
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 5.50...5.70

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 900
Del.quantity cm3/ : 66.5...69.5
1000 s: (64.0...72.0)
Spread cm3 : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.50
Speed rpm : 1460...1470

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 90.0...110.0
1000 s: (87.0...113.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.50...5.70
Del.quantity cm3/ : 14.0...18.0
1000 s: (11.5...20.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 T 1
Edition : 09.11.89
Replaces : 18.08.89
Test oil : ISO-4113

Combination no. : 0 403 446 234

Injection pump
Pump designation : PES6MW100/320RS1176
EP type number : 0 413 406 158
Governor
Governor design. : RQV275...1250MW80-4
Governor no. : 0 420 083 196

Customer-spec. information
Customer : RVI

Engine : MIDR 060226H

1st version kW : 143.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 2 417 413 033

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 11.40...11.50

Del.quantity cm3/ : 9.9...10.1

100 s: (9.7...10.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 275.0

Rack travel in mm : 6.60...6.80

Del.quantity cm3/ : 2.0...2.4

100 s: (1.7...2.6)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 8.90...9.30

2nd speed rpm : 1325

travel mm : 8.00...8.20

3rd speed rpm : 500

travel mm : 3.00...3.60

4th speed rpm : 275

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1320

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 750

Del.quantity : 99.0...101.0

1000 : (97.0...103.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 49...57

Testing:

1st rack travel in: 10.40
Speed rpm : 1335...1345
2nd rack travel in: 4.00
Speed rpm : 1450...1480
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 4.7

Testing:

Speed rpm : 200
Minimum rack travel: 8.10
Speed rpm : 275
Rack travel in mm : 6.60...6.80

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 750
Rack travel mm : 11.40...11.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.50...9.60
2nd pressure hPa : 150
Rack travel in m: 9.90...10.00
3rd pressure hPa : 300
Rack travel in m: 10.90...11.20

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750
Speed rpm : 750
Del.quantity cm³/ : 94.5...97.5
1000 s: (92.0...100.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 51.0...53.0
1000 s: (49.0...55.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 1335...1345

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 88.0...102.0
1000 s: (85.0...105.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 275
Rack travel in mm : 6.60...6.80
Del.quantity cm³/ : 20.0...24.0
1000 s: (17.5...26.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Set start-of-delivery sensor at pre-stroke to 3.50...3.60 mm for cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 S 3
Edition : 02.01.90
Replaces : 18.08.89
Test oil : ISO-4113

Combination no. : 0 403 446 235

Injection pump
Pump designation : PES6MW100/32ORS1171
EP type number : 0 413 406 156
Governor
Governor design. : RQV300...1300MW80-5
Governor no. : 0 420 083 197

Customer-spec. information
Customer : RVI

Engine : MIDS 060212B

1st version kW : 113.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 033

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
: (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.80...10.90

Del.quantity cm3/ : 8.6...8.8

100 s: (8.4...9.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.40...5.60

Del.quantity cm3/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1500

travel mm : 8.70...9.10

2nd speed rpm : 1350

travel mm : 7.60...7.80

3rd speed rpm : 500

travel mm : 2.80...3.40

4th speed rpm : 300

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 86.0...88.0

1000 : (84.0...90.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 9.80

Speed rpm : 1370...1380
2nd rack travel in: 4.00
Speed rpm : 1520...1550
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 7.00
Speed rpm : 300
Rack travel in mm : 5.40...5.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.80...8.90

Measurement

Speed 1/min : 500

1st pressure hPa : 100
Rack travel in m: 9.30...9.40
2nd pressure hPa : 200
Rack travel in m: 10.20...10.50
3rd pressure hPa : 700
Rack travel in m: 10.80...10.90

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 900
Del.quantity cm³/ : 81.0...84.0
1000 s: (78.5...86.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 43.0...45.0
1000 s: (41.0...47.0)

BREAKAWAY

A20

1st version
1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1370...1380

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 90.0...110.0
1000 s: (87.0...113.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Start-of-delivery mark mode with
prestroke 3.00...3.10 mm at barrel 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 6,0 W
 Edition : 13.12.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 236
 Injection pump
 Pump designation : PES6MW100/32ORS1119-
 3
 EP type number : 0 413 406 173
 Governor
 Governor design. : RQV300...1400MW57-2
 Governor no. : 0 420 083 198

Customer-spec. information
 Customer : VOLVO-TRUCK

Engine : TD 61-FBQ

1st version kW : 149.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
 : (3.05...3.25)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.40...12.50

Del.quantity cm3/ : 11.4...11.6

100 s: (11.2...11.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.4

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1600

travel mm : 9.50...9.90

2nd speed rpm : 1450

travel mm : 8.40...8.60

3rd speed rpm : 550

travel mm : 3.20...3.80

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1480

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del.quantity : 114.0...116.0

1000 : (112.0...118.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:
1st rack travel in: 11.40
Speed rpm : 1450...1460
2nd rack travel in: 4.00
Speed rpm : 1610...1640
4th rack travel in: 1725
Speed rpm : 0.10...1.00

LOW IDLE 1
Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.3

Testing:
Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.20...6.40
Rack travel in mm : 2.00
Speed rpm : 540...600

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 550
Pressure hPa : 665
Rack travel mm : 12.10...12.20

Measurement
Speed 1/min : 550

1st pressure hPa : -
Rack travel in m: 10.00...10.10
2nd pressure hPa : 400
Rack travel in m: 10.30...10.50
3rd pressure hPa : 1000
Rack travel in m: 12.40...12.50

START CUT-OUT

Speed 1/min : 270 (280)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 1000
Del.quantity cm3/ : 75.0...77.0
1000 s: (73.0...79.0)

RACK STOP ADJUSTMENT

Speed rpm : 100

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 1450...1460

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (137.0...163.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.20...6.40
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 6,0 Z
 Edition : 13.12.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 237
 Injection pump
 Pump designation : PES6MW100/320RS1119-
 4
 EP type number : 0 413 406 174
 Governor
 Governor design. : RQV300...1400MW57-3
 Governor no. : 0 420 083 199

Customer-spec. information
 Customer : VOLVO-TRUCK

Engine : TD 61-FHQ / GC

1st version kW : 127.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
 : (3.05...3.25)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.90...12.00

Del.quantity cm3/ : 9.6...9.8

100 s: (9.4...10.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.7...6.9

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1600

travel mm : 9.50...9.90

2nd speed rpm : 1450

travel mm : 8.40...8.60

3rd speed rpm : 550

travel mm : 3.20...3.80

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1480

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 600

Del.quantity : 96.0...98.0

1000 : (94.0...100.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 58...66

Testing:
1st rack travel in: 10.90
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1590...1620
4th rack travel in: 1725
Speed rpm : 0.10...1.00

LOW IDLE 1
Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.8

Testing:
Speed rpm : 100
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 540...600

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 550
Pressure hPa : 470
Rack travel mm : 11.60...11.70

Measurement
Speed 1/min : 550

1st pressure hPa : -
Rack travel in m: 10.40...10.50
2nd pressure hPa : 330
Rack travel in m: 10.60...10.80
3rd pressure hPa : 600
Rack travel in m: 11.90...12.00

START CUT-OUT

Speed 1/min : 270 (280)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 1000
Del.quantity cm³/ : 75.0...77.0
1000 s: (73.0...79.0)

RACK STOP ADJUSTMENT

Speed rpm : 100

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (137.0...163.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.70...6.90
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : AIF 5,9 A
 Edition : 02.01.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 238
 Injection pump
 Pump designation : PES6MW100/720RS1188
 EP type number : 0 413 406 175
 Governor
 Governor design. : RQV300...1350MW106
 Governor no. : 0 420 083 200

Customer-spec. information
 Customer : AIFO

Engine : 8061.25.051

1st version kW : 210.0
 Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 11.50...14.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1350

Rack travel in mm : 11.90...12.00

Del.quantity cm3/ : 13.1...13.3

100 s: (12.9...13.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 1.1...1.5

100 s: (0.8...1.7)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1530

travel mm : 9.00...9.20

2nd speed rpm : 1400

travel mm : 7.80...8.20

3rd speed rpm : 600

travel mm : 2.90...3.50

4th speed rpm : 300

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1350

Del.quantity : 131.0...133.0

1000 : (129.0...135.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 48...56

Testing:

1st rack travel in: 10.90
Speed rpm : 1390...1400
2nd rack travel in: 4.00
Speed rpm : 1515...1545
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:

Speed rpm : 200
Minimum rack travel: 7.50
Speed rpm : 300
Rack travel in mm : 5.90...6.10

TORQUE CONTROL

Dimension a mm : 1.30
Torque control curve - 1st version
1st speed rpm : 1350
Rack travel in m: 11.90...12.00
2nd speed rpm : 800
Rack travel in m: 13.20...13.30
3rd speed rpm : 1000
Rack travel in m: 12.80...13.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm3/ : 149.0...152.0
1000 s: (146.5...154.5)
Spread cm3 : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1390...1400

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 110.0...120.0
1000 s: (107.0...123.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10
Del.quantity cm3/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,2 Q
Edition : 24.11.89
Replaces : 23.06.89
Test oil : ISO-4113

Combination no. : 0 403 456 105

Injection pump
Pump designation : PES6MW100/321RS1186
EP type number : 0 413 406 168
Governor
Governor design. : RQ250/1200MW84-2
Governor no. : 0 420 082 040

Customer-spec. information
Customer : MAN

Engine : D 0826 LUH

1st version kW : 157.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70
: (3.55...3.75)

Rack travel in mm : 15.00...0.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 14.70...14.80

Del.quantity cm³/ : 12.6...12.8

100 s: (12.4...13.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 1.9...2.3

100 s: (1.6...2.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1280

travel mm : 9.50...9.90

2nd speed rpm : 1250

travel mm : 7.50...7.70

3rd speed rpm : 350

travel mm : 5.20...5.80

4th speed rpm : 250

travel mm : 2.30...2.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del.quantity : 126.0...128.0

1000 : (124.0...130.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 38...46

Setting point:
Speed rpm : 600
Rack travel in mm : 15.5

Testing:
1st rack travel in: 13.80
Speed rpm : 1245...1260
2nd rack travel in: 4.00
Speed rpm : 1285...1315
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...16
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5

Testing:
Speed rpm : 100
Minimum rack travel: 7.50
Speed rpm : 250
Rack travel in mm : 5.40...5.60

TORQUE CONTROL
Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 14.70...14.80
2nd speed rpm : 600
Rack travel in m: 14.80...14.90
3rd speed rpm : 800
Rack travel in m: 14.80...14.90
4th speed rpm : 1200
Rack travel in m: 14.30...14.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 200
Rack travel mm : 12.70...12.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.20...12.30
2nd pressure hPa : 400
Rack travel in m: 13.80...14.10

3rd pressure hPa : 1000
Rack travel in m: 14.80...14.90

START CUT-OUT

Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ : 126.5...129.5
1000 s: (124.0...132.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm³/ : 126.5...129.5
1000 s: (124.0...132.0)
Aneroid pressure h: 1000
Speed rpm : 1200
Del.quantity cm³/ : 123.0...126.0
1000 s: (120.5...128.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.80
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...140.0
1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,2 R
 Edition : 24.11.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 456 106
 Injection pump
 Pump designation : PES6MW100/321RS1190
 EP type number : 0 413 406 176
 Governor
 Governor design. : RQ250/1300MW84
 Governor no. : 0 420 082 029

Cust. part no. : 3-7020

Customer-spec. information
 Customer : MAN

Engine : D 0826 LF

1st version kW : 165.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35
 : (3.20...3.40)
 Rack travel in mm : 15.00...0.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 14.90...15.00
 Del.quantity cm³/ : 13.3...13.5
 100 s: (13.1...13.7)
 Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 250.0
 Rack travel in mm : 5.4...5.6
 Del.quantity cm³/ : 1.9...2.3
 100 s: (1.6...2.5)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1440
 travel mm : 8.70...9.10
 2nd speed rpm : 1360
 travel mm : 6.30...6.50
 3rd speed rpm : 380
 travel mm : 4.10...4.70
 4th speed rpm : 250
 travel mm : 1.50...1.90

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1000
 Del.quantity : 133.0...135.0
 1000 : (131.0...137.0)

Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 33...41

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 13.90
Speed rpm : 1345...1360
2nd rack travel in: 4.00
Speed rpm : 1450...1480
4th rack travel in: 1530
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 7...15
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5

Testing:
Speed rpm : 100
Minimum rack trave: 7.00
Speed rpm : 250
Rack travel in mm : 5.40...5.60

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 180
Rack travel mm : 12.60...12.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.90...12.00
2nd pressure hPa : 385
Rack travel in m: 13.70...14.00
3rd pressure hPa : 1000
Rack travel in m: 14.90...15.00

START CUT-OUT

Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm3/ : 132.5...135.5
1000 s: (130.0...138.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm3/ : 134.0...137.0
1000 s: (131.5...139.5)
Aneroid pressure h: 1000
Speed rpm : 1300
Del.quantity cm3/ : 135.5...138.5
1000 s: (133.0...141.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.90
Speed rpm : 1345...1360

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...140.0
1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.40...5.60
Del.quantity cm3/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: MAN # 3-7020
Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,2 L
Edition : 02.01.90
Replaces : 27.10.88
Test oil : ISO-4113

Combination no. : 0 403 456 107

Injection pump
Pump designation : PES6MW100/321RS1153
EP type number : 0 413 406 145
Governor
Governor design. : RQV250...1300MW83
Governor no. : 0 420 083 139

Cust. part no. : 3-7021

Customer-spec. information
Customer : MAN

Engine : D 0826 LF

1st version kW : 165.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.50...11.60

Del.quantity cm³/ : 13.3...13.5

100 s: (13.1...13.7)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 4.8...5.0

Del.quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.40...9.80

2nd speed rpm : 1350

travel mm : 8.40...8.60

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 250

travel mm : 0.80...1.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del.quantity : 133.0...135.0

1000 : (131.0...137.0)

Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:

1st rack travel in: 10.50
Speed rpm : 1345...1360
2nd rack travel in: 4.00
Speed rpm : 1445...1475
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 4.9

Testing:

Speed rpm : 100
Minimum rack travel: 7.00
Speed rpm : 250
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

Speed rpm : 330...420

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 180
Rack travel mm : 9.40...9.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.00
2nd pressure hPa : 385
Rack travel in m: 10.80...11.10
3rd pressure hPa : 1000
Rack travel in m: 11.50...11.60

START CUT-OUT

Speed 1/min : 170 (200)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm3/ : 130.0...133.0
1000 s: (127.5...135.5)

Spread cm3 : 5.00
1000 s: (7.0)

Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm3/ : 132.0...135.0
1000 s: (129.5...137.5)

Aneroid pressure h: 1000
Speed rpm : 1300
Del.quantity cm3/ : 132.5...135.5
1000 s: (130.0...138.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1345...1360

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...140.0
1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.80...5.00
Del.quantity cm3/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:
Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 C11
Edition : 05.01.90
Replaces : 07.02.89
Test oil : ISO-4113

Combination no. : 0 403 466 110

Injection pump
Pump designation : PES6MW100/120RS1137
EP type number : 0 413 406 131
Governor
Governor design. : RSV500...1250MW2A319

Governor no. : 0 420 085 102

Cust. part no. : 3915688

Customer-spec. information
Customer : CUMMINS/US

Engine : 6 CTA-8.3 L

1st version kW : 171.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
(3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.80...12.90

Del.quantity cm3/ : 13.4...13.6

100 s: (13.2...13.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 500.0
Rack travel in mm : 6.5...6.7
Del.quantity cm3/ : 1.6...2.0
100 s: (1.3...2.2)

Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3

Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1250
Del.quantity : 134.0...136.0
1000 : (132.0...138.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 50...58

Setting point:

Speed rpm : 800
Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.80
Speed rpm : 1320...1330
2nd rack travel in: 4.00
Speed rpm : 1360...1390
4th rack travel in: 1550
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 6.1

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 500
Rack travel in mm : 6.00...6.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 126.5...129.5
1000 s: (124.0...132.0)
Spread cm3 : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80
Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500
Rack travel in mm : 6.50...6.70
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)

Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: C.D.C # 3915688
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 C10
Edition : 01.12.89
Replaces : 22.12.88
Test oil : ISO-4113

Combination no. : 0 403 466 112

Injection pump
Pump designation : PES6MW100/120RS1137
EP type number : 0 413 406 131
Governor
Governor design. : RSV425...1100MW2A319
-8

Governer no. : 0 420 085 104

Cust. part no. : 3915970

Customer-spec. information
Customer : CUMMINS

Engine : 6 CTA-8.3 L

1st version kW : 188.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 14.10...14.20

Del.quantity cm3/ : 14.2...14.4

100 s: (14.0...14.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 425.0
Rack travel in mm : 7.7...7.9
Del.quantity cm3/ : 1.9...2.3
100 s: (1.6...2.5)

Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 2.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100
Del.quantity : 142.0...144.0
1000 : (140.0...146.0)

Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 42...50

Setting point:

Speed rpm : 800
Rack travel in mm : 0.6

Testing:

1st rack travel in: 13.10
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1300
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 7.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 7.20...7.40
Rack travel in mm : 2.00
Speed rpm : 490...550

TORQUE CONTROL

Dimension a mm : 0.60
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 14.10...14.20
2nd speed rpm : 750
Rack travel in m: 14.70...14.80
3rd speed rpm : 900
Rack travel in m: 14.30...14.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 148.5...151.5
1000 s: (146.0...154.0)
Spread cm3 : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.10
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 7.70...7.90
Del.quantity cm3/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: C.D.C # 3915970

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

Starting/full-load transition speed
from holding magnet = 500 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 H 2
Edition : 13.10.89
Replaces : 07.02.89
Test oil : ISO-4113

Combination no. : 0 403 466 113

Injection pump
Pump designation : PES6MW100/120RS1137-
1

EP type number : 0 413 406 157

Governor

Governor design. : RSV450...1100MW2A319-
13

Governor no. : 0 420 085 114

Cust. part no. : 3195686

Customer-spec. information
Customer : CUMMINS/US

Engine : 6 CTA

Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 9 410 270 183

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

B10

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 14.00...14.10

Del.quantity cm³/ : 15.0...15.2

100 s: (14.8...15.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 6.9...7.1

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 150.5...152.5

1000 : (148.5...154.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.50
Speed rpm : 1150...1160
2nd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1370
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 7.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 450
Rack travel in mm : 6.90...7.10

SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 750
Rack travel in m: 14.00...14.10
2nd speed rpm : 1100
Rack travel in m: 12.50...12.70
3rd speed rpm : 950
Rack travel in m: 13.20...13.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1100
Del.quantity cm³/ : 130.5...133.5
1000 s: (128.0...136.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1150...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 6.90...7.10
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: C.D.C # 3195686

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Starting/full-load transition speed
from holding magnet = 500 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 C 8
Edition : 01.12.89
Replaces : 07.02.89
Test oil : ISO-4113

Combination no. : 0 403 466 115

Injection pump
Pump designation : PES6MW100/120RS1137
EP type number : 0 413 406 131
Governor
Governor design. : RSV400...1050MW2A319
-11

Governor no. : 0 420 085 107

Cust. part no. : 3915972

Customer-spec. information
Customer : CUMMINS

Engine : 6 CTA

1st version kW : 165.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 14.20...14.30

Del.quantity cm3/ : 15.1...15.3

100 s: (14.9...15.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 400.0
Rack travel in mm : 7.3...7.5
Del.quantity cm3/ : 1.6...2.0
100 s: (1.3...2.2)

Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 750
Del.quantity : 151.0...153.0
1000 : (149.0...155.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 41...49

Setting point:

Speed rpm : 800
Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1320
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 6.80...7.00
Rack travel in mm : 2.00
Speed rpm : 490...560

TORQUE CONTROL

Dimension a mm : 2.10
Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 14.20...14.30
2nd speed rpm : 1050
Rack travel in m: 12.20...12.40
3rd speed rpm : 950
Rack travel in m: 13.00...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1050
Del.quantity cm³/ : 123.5...126.5
1000 s: (121.0...129.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 7.30...7.50
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: C.D.C # 3915972

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

Starting/full-load transition speed
from holding magnet = 500 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 I
Edition : 24.11.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 466 117
Injection pump
Pump designation : PES6MW100/12ORS1178
EP type number : 0 413 406 160
Governor
Governor design. : RSV425...1250MW2A332
Governor no. : 0 420 085 110

Cust. part no. : 3913734

Customer spec. information
Customer : CUMMINS/US

Engine : 6 CTA

1st version kW : 204.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.45...3.55
: (3.40...3.60)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Phasing :
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250
Rack travel in mm : 14.10...14.20
Del. quantity cm³/ : 15.5...15.7
100 s : (15.3...15.9)
Spread cm³ : 0.3
100 s : (0.6)

2nd speed rpm : 425.0
Rack travel in mm : 5.4...5.6
Del. quantity cm³/ : 1.1...1.5
100 s : (0.8...1.7)
Spread cm³ : 0.3
100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1250
Aneroid pressure h: 900
Del. quantity : 155.5...157.5
1000 : (153.5...159.5)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 55...63

Setting point:

Speed rpm : 800
Rack travel in mm : 0.6

Testing:

1st rack travel in: 13.10
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1405...1435
3rd rack travel in: 4.00
Speed rpm : 1415...1445
4th rack travel in: 1650
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 29...37
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 525...585

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Rack travel mm : 10.80...11.00

Measurement

Speed 1/min : 500

1st pressure hPa : 325
Rack travel in m: 11.50...11.60
2nd pressure hPa : 505
Rack travel in m: 13.00...13.30
3rd pressure hPa : 900
Rack travel in m: 14.10...14.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 92.5...94.5
1000 s: (90.5...96.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.10
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...180.0
1000 s: (155.0...185.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: C.D.C. # 3913734

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1

Starting/full-load transition speed from holding magnet = 500 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 E 3
Edition : 05.01.90
Replaces : 23.06.89
Test oil : ISO-4113

Combination no. : 0 403 466 119

Injection pump
Pump designation : PES6MW100/120RS1148
EP type number : 0 413 406 143
Governor
Governor design. : RSV400...750MW7A319-14
Governor no. : 0 420 085 120

Cust. part no. : 3914872

Customer-spec. information
Customer : CUMMINS

Engine : 6 CTA

1st version kW : 180.0
Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70
(3.55...3.75)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 13.00...13.10

Del.quantity cm³/ : 17.9...18.1

100 s: (17.7...18.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 6.0...6.2

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 179.5...181.5

1000 : (177.5...183.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Setting point:

Speed rpm : 800
Rack travel in mm : 0.6

Testing:

1st rack travel in: 12.00
Speed rpm : 790...800
2nd rack travel in: 4.00
Speed rpm : 815...845
4th rack travel in: 1000
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.1

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 6.00...6.20

SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 790...800

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.00...6.20
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: C.D.C. #3914872

Start-of-delivery mark 9° cam angle
after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 H 3
Edition : 02.10.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 466 120

Injection pump
Pump designation : PES6MW100/120RS1137-
1
EP type number : 0 413 406 157
Governor
Governor design. : RSV450...1100MW2A335
Governor no. : 0 420 085 121

Cust. part no. : 3915993

Customer-spec. information
Customer : CUMMINS

Engine : 6 CTA

1st version kW : 172.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 413 417 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness : 6.00X2.00X600
x Length mm

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
(3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.70...12.80

Del.quantity cm3/ : 13.6...13.8

100 s: (13.4...14.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 450.0
Rack travel in mm : 6.4...6.6
Del.quantity cm3/ : 1.3...1.7
100 s: (1.0...1.9)
Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del.quantity : 136.5...138.5

1000 : (134.5...140.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 37...45

Setting point:
Speed rpm : 800
Rack travel in mm : 0.6

Testing:
1st rack travel in: 11.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1190...1220
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1250
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 6.0

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 450
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 520...580

SET IDLE AUXILIARY SPRING
Rack travel in mm : 4.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.70...12.80
2nd speed rpm : 750
Rack travel in m: 14.10...14.20
3rd speed rpm : 850
Rack travel in m: 14.10...14.20

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.90...11.00

Measurement
Speed 1/min : 500

1st pressure hPa : 365
Rack travel in m: 11.80...11.90
2nd pressure hPa : 565

Rack travel in m: 13.30...13.60
3rd pressure hPa : 900
Rack travel in m: 14.10...14.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 750
Del.quantity cm3/ : 154.0...158.0
1000 s: (152.0...160.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 98.0...100.0
1000 s: (96.0...102.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 6.40...6.60
Del.quantity cm3/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:
: C.D.C # 3915993
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Starting/full-load transition speed
from holding magnet = 500 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 N
Edition : 24.11.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 466 121

Injection pump
Pump designation : PES6MW100/120RS1184
EP type number : 0 413 406 171
Governor
Governor design. : RSV375...1250MW2A334
Governor no. : 0 420 085 122

Cust. part no. : 3280646

Customer-spec. information
Customer : CUMMINS

Engine : 6 BTAA 5.9

1st version kW : 157.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Phasing :
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.80...10.90

Del.quantity cm3/ : 12.5...12.7
100 s: (12.3...12.9)

Spread cm3 : 0.3
100 s: (0.6)

2nd speed rpm : 375.0
Rack travel in mm : 6.5...7.0
Del.quantity cm3/ : 1.6...2.0
100 s: (1.3...2.2)
Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1250
Aneroid pressure h: 800
Del.quantity : 125.0...127.0
1000 : (123.0...129.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 52...60

Setting point:
Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 9.80
Speed rpm : 1295...1305
2nd rack travel in: 4.00
Speed rpm : 1370...1400
4th rack travel in: 1470
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 28...36
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 5.7

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 375
Rack travel in mm : 5.50...6.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.30...9.40

Measurement

Speed 1/min : 500

1st pressure hPa : 490
Rack travel in m: 10.20...10.30
2nd pressure hPa : 550
Rack travel in m: 10.40...10.70
3rd pressure hPa : 800
Rack travel in m: 10.80...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 80.0...82.0
1000 s: (78.0...84.0)
Spread cm³ : 5.00
1000 s: (7.00)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1295...1305

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...140.0
1000 s: (127.0...143.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 375
Rack travel in mm : 6.50...7.00
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: C.D.C. # 3280646

Start-of-delivery mark 9° cam angle
after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 C12
 Edition : 06.10.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 466 122

Injection pump
 Pump designation : PES6MW100/120RS1137
 EP type number : 0 413 406 131
 Governor
 Governor design. : RSV400...1250MW2A319
 -15
 Governor no. : 0 420 085 123

Cust. part no. : 3917598

Customer-spec. information
 Customer : CUMMINS

Engine : 6 CTA

1st version kW : 204.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.40...13.50

Del.quantity cm³/ : 15.2...15.4

100 s: (15.0...15.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 7.1...7.3

Del.quantity cm³/ : 2.0...2.4

100 s: (1.8...2.7)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 4.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Del.quantity : 152.0...154.0
 1000 : (150.0...156.0)

Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 47...55

Setting point:

Speed rpm : 800
Rack travel in mm : 0.6

Testing:

1st rack travel in: 12.40
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1355...1385
3rd rack travel in: 4.00
Speed rpm : 1370...1400
4th rack travel in: 1500
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.7

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 6.60...6.80
Rack travel in mm : 2.00
Speed rpm : 500...560

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 146.5...149.5
1000 s: (144.0...152.0)
Spread cm3 : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400

B23

Rack travel in mm : 7.10...7.30
Del.quantity cm3/ : 20.5...24.5
1000 s: (18.0...27.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: C.D.C # 3917598

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Starting/full-load transition speed
from holding magnet = 500 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 Q
 Edition : 05.01.90
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 466 123

Injection pump
 Pump designation : PES6MW100/120RS1137-
 2
 EP type number : 0 413 406 180
 Governor
 Governor design. : RSV500...1250MW2A319
 -16
 Governor no. : 0 420 085 130

Cust. part no. : 3918357

Customer-spec. information
 Customer : CUMMINS

Engine : 6 CTA-8.3 L

1st version kW : 171.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.80...12.90

Del.quantity cm3/ : 13.4...13.6
 100 s: (13.2...13.8)

Spread cm3 : 0.3
 100 s: (0.6)

2nd speed rpm : 500.0
 Rack travel in mm : 6.5...6.7
 Del.quantity cm3/ : 1.6...2.0
 100 s: (1.3...2.2)

Spread cm3 : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3

Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Del.quantity : 134.0...136.0
 1000 : (132.0...138.0)

Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 50...58

Setting point:
Speed rpm : 800
Rack travel in mm : 0.6

Testing:
1st rack travel in: 11.80
Speed rpm : 1320...1330
2nd rack travel in: 4.00
Speed rpm : 1360...1390
4th rack travel in: 1550
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 500
Rack travel in mm : 6.00...6.20

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 126.5...129.5
1000 s: (124.0...132.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500
Rack travel in mm : 6.50...6.70

Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 4,5 M
Edition : 02.01.90
Replaces : 07.04.89
Test oil : ISO-4113

Combination no. : 0 403 474 007

Injection pump
Pump designation : PES4MW100/320RS1175
EP type number : 0 413 404 105
Governor
Governor design. : RSV300...1000MW1A315
-1
Governor no. : 0 420 085 099

Customer-spec. information
Customer : VOLVO-BM

Engine : TD45

1st version kW : 84.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.40...12.50

Del.quantity cm3/ : 10.5...10.7

100 s: (10.3...10.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.2...8.4

Del.quantity cm3/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 105.0...107.0

1000 : (103.0...109.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.40

Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1070...1100
3rd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1200
Speed rpm : 0.30...1.70

LOW IDLE 1

Control Lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.7

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 7.60...7.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1000
Del.quantity cm3/ : 106.5...109.5
1000 s: (104.0...112.0)
Spread cm3 : 5.50
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...140.0
1000 s: (127.0...143.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.20...8.40
Del.quantity cm3/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 4,1 H
Edition : 02.01.90
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 474 009
Injection pump
Pump designation : PES4MW100/720RS1187
EP type number : 0 413 404 108
Governor
Governor design. : RSV300...1250MW5A337
Governor no. : 0 420 085 128

Customer-spec. information
Customer : KHD

Engine : BF 4L 913C

1st version kw : 92.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.95...4.05
: (3.90...4.10)
Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.70...13.80

Del.quantity cm³/ : 11.8...12.0

100 s: (11.6...12.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0
Rack travel in mm : 8.0...8.2
Del.quantity cm³/ : 1.2...1.6
100 s: (0.9...1.8)
Spread cm³ : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3

Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : 4.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1250
Aneroid pressure h: 1000
Del.quantity : 118.0...120.0
1000 : (116.0...122.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 52...60

Setting point:
Speed rpm : 800
Rack travel in mm : 0.6

Testing:

1st rack travel in: 12.70
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1365...1395
4th rack travel in: 1500
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.6
Speed rpm : 300
Rack travel in mm : 7.50...7.70

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 13.70...13.80
2nd speed rpm : 800
Rack travel in m: 14.00...14.10
3rd speed rpm : 900
Rack travel in m: 13.90...14.00
4th speed rpm : 1000
Rack travel in m: 13.70...13.90

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.70...11.80

Measurement

Speed 1/min : 500

1st pressure hPa : 320
Rack travel in m: 12.40...12.50
2nd pressure hPa : 470
Rack travel in m: 13.10...13.40
3rd pressure hPa : 1000
Rack travel in m: 14.00...14.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm³/ : 113.5...116.5
1000 s: (111.0...119.0)
Spread cm³ : 3.50
1000 s: (7.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 66.0...68.0
1000 s: (64.0...70.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.70
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.00...8.20
Del.quantity cm³/ : 12.0...16.0
1000 s: (9.5...18.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 6,2 E
Edition : 13.10.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 476 073
Injection pump
Pump designation : PES6MW80/320RS1104-1
EP type number : 0 413 486 004
Governor
Governor design. : RSV300...1450MWOA801
Governor no. : 0 420 085 067

Customer-spec. information
Customer : RVI

Engine : 797 NFA

1st version kw : 89.0
Rated speed : 2900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 028

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 173...176

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 1.75...1.85
: (1.70...1.90)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.20...10.30

Del.quantity cm³/ : 5.3...5.5

100 s: (5.1...5.7)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 300.0

Rack travel in mm : 5.10...5.80

Del.quantity cm³/ : 1.2...1.5

100 s: (1.1...1.7)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 53.0...55.0

1000 : (51.0...57.0)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 7.90

Speed rpm : 1525...1535

2nd rack travel in: 4.00

Speed rpm : 1610...1640

4th rack travel in: 1700
Speed rpm : 0.00...1.00

Remarks:

LOW IDLE 1

Control lever
position degrees: 29...37
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.7
Speed rpm : 300
Rack travel in mm : 5.10...5.80
Speed rpm : 250
Maximum rack trave: 7.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10.20...10.30
2nd speed rpm : 1450
Rack travel in m: 8.80...9.00
3rd speed rpm : 1050
Rack travel in m: 9.80...10.00
4th speed rpm : 1170
Rack travel in m: 9.30...9.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1450
Del.quantity cm3/ : 53.0...55.0
1000 s: (51.0...57.0)
Spread cm3 : 3.50
1000 s: (4.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.90
Speed rpm : 1525...1535

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 75.0...85.0
1000 s: (72.0...88.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.10...5.80
Del.quantity cm3/ : 12.5...15.5
1000 s: (11.0...17.0)
Spread cm3 : 2.00
1000 s: (3.50)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,2 P
Edition : 15.12.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 476 074

Injection pump
Pump designation : PES6MW100/320RS1183
EP type number : 0 413 406 169
Governor
Governor design. : RSV300...750MW1A802
Governor no. : 0 420 085 113

Cust. part no. : 2-7937

Customer-spec. information
Customer : MAN

Engine : D0826LE20

1st version kW : 116.0
Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 681 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

C04

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Phasing :
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700
Rack travel in mm : 11.80...11.90
Del.quantity cm3/ : 14.4...14.6
100 s: (14.2...14.8)
Spread cm3 : 0.3
100 s: (0.6)

2nd speed rpm : 300.0
Rack travel in mm : 5.7...6.4
Del.quantity cm3/ : 3.0...3.4
100 s: (2.8...3.6)
Spread cm3 : 0.6
100 s: (0.9)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Del.quantity : 144.0...146.0
1000 : (142.0...148.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 34...42

Setting point:
Speed rpm : 800
Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.80
Speed rpm : 750...755
2nd rack travel in: 4.00
Speed rpm : 777...790
4th rack travel in: 950
Speed rpm : 030...1.70

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0
Speed rpm : 300
Rack travel in mm : 5.70...6.40
Rack travel in mm : 2.00
Speed rpm : 310...370

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 125.0...135.0
1000 s: (122.0...138.0)

HIGH IDLE

1st version

Speed rpm : 782
Rack travel in mm : 4.00
Spread cm3 : 3.50
1000 s: (6.00)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.70...6.40
Del.quantity cm3/ : 30.0...34.0
1000 s: (28.5...36.5)
Spread cm3 : 6.00
1000 s: (9.00)

Remarks:

:

Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 F
Edition : 02.10.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 476 076

Injection pump
Pump designation : PES6MW100/720RS1120-1
EP type number : 0 413 406 172
Governor
Governor design. : RSV350...1300MWOA2-1
Governor no. : 0 420 085 125

Customer-spec. information
Customer : DB-NKW

Engine : OM 366 LA

1st version kW : 142.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.00...13.10

Del.quantity cm3/ : 9.5...9.7

100 s: (9.3...9.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.2...6.9

Del.quantity cm3/ : 1.0...1.2

100 s: (0.6...1.5)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 95.0...97.0

1000 : (93.0...99.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 106...114

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 12.00

Speed rpm : 1340...1345

2nd rack travel in: 4.00

Speed rpm : 1397...1410
3rd rack travel in: 4.00
Speed rpm : 1460...1490
4th rack travel in: 1600
Speed rpm : 0.30...1.70
5th rack travel in: 1335...1350
Speed rpm : 12.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 6.20...6.90
Rack travel in mm : 2.00
Speed rpm : 420...480

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.60...11.70

Measurement

Speed 1/min : 500

1st pressure hPa : 300

Rack travel in m: 12.10...12.20

2nd pressure hPa : 360

Rack travel in m: 12.60...12.90

3rd pressure hPa : 700

Rack travel in m: 13.00...13.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 750

Del.quantity cm3/ : 83.0...86.0

1000 s: (80.5...88.5)

Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 50.0...52.0

1000 s: (48.0...54.0)

BREAKAWAY

1st version

C07

1mm rack travel less than

full load rack tr: 12.00

Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 85.0...95.0

1000 s: (92.0...98.0)

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.20...6.90

Del.quantity cm3/ : 10.0...12.0

1000 s: (6.5...15.5)

Spread cm3 : 3.50

1000 s: (5.00)

Remarks:

:

Test hydr. locking device for starting
with 800...1200 hPa air pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 76
 Edition : 09.11.89
 Replaces : 15.08.89
 Test oil : ISO-4113
 Combination no. : 0 403 476 077
 Injection pump
 Pump designation : PES6MW100/720RS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RSV350...1300MWOA3
 Governor no. : 0 420 085 126

Customer-spec. information
 Customer : DB-NKW

Engine : OM 366 LA

1st version kW : 127.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.60...11.70

Del.quantity cm3/ : 8.1...8.3

100 s: (7.9...8.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.2...6.9

Del.quantity cm3/ : 1.0...1.2

100 s: (0.6...1.5)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del.quantity : 81.0...83.0

1000 : (79.0...85.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 103...111

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.60

Speed rpm : 1340...1345

2nd rack travel in: 4.00
Speed rpm : 1397...1410
3rd rack travel in: 4.00
Speed rpm : 1430...1460
4th rack travel in: 1550
Speed rpm : 0.30...1.70
5th rack travel in: 1335...1350
Speed rpm : 10.60

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 6.20...6.90
Rack travel in mm : 2.00
Speed rpm : 440...500

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 11.60...11.70
2nd speed rpm : 900
Rack travel in m: 11.90...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900
Del.quantity cm3/ : 76.0...79.0
1000 s: (73.5...81.5)
Spread cm3 : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.60
Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 80.0...90.0
1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.20...6.90

Del.quantity cm3/ : 10.0...12.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 13,4D10
 Edition : 06.10.89
 Replaces : 11.03.88
 Test oil : ISO-4113

Combination no. : 0 403 548 023

Injection pump
 Pump designation : PE8MW100/720LS1128
 EP type number : 0 413 508 103
 Governor
 Governor design. : RQV300...1150MW56-3
 Governor no. : 0 420 083 154

Customer-spec. information
 Customer : KHD

Engine : BF 8L 513

1st version kW : 225.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 740 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
 : (3.05...3.25)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 12.90...13.00

Del.quantity cm3/ : 14.2...14.4

100 s: (14.0...14.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.5...6.7

Del.quantity cm3/ : 1.3...1.7

100 s: (1.1...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1300
 travel mm : 9.80...10.20

2nd speed rpm : 1220
 travel mm : 8.80...9.00

3rd speed rpm : 600
 travel mm : 3.90...4.50

4th speed rpm : 300
 travel mm : 1.10...1.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 1000

Del.quantity : 142.0...144.0

1000 : (140.0...146.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 51...59

Testing:
1st rack travel in: 11.90
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1290...1320
4th rack travel in: 1380
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.6

Testing:
Speed rpm : 100
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 6.50...6.70

TORQUE CONTROL
Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 12.90...13.00
2nd speed rpm : 700
Rack travel in m: 13.20...13.30
3rd speed rpm : 800
Rack travel in m: 13.00...13.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 660
Rack travel mm : 12.70...12.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.90...12.00
2nd pressure hPa : 530
Rack travel in m: 12.20...12.50
3rd pressure hPa : 1000
Rack travel in m: 13.20...13.30

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 700
Del.quantity cm3/ : 142.5...145.5
1000 s: (140.0...148.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 450
Del.quantity cm3/ : 107.0...109.0
1000 s: (105.0...111.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...150.0
1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.50...6.70
Del.quantity cm3/ : 13.0...17.0
1000 s: (11.0...19.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 13,4D12
 Edition : 06.10.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 548 025
 Injection pump
 Pump designation : PE8MW100/720LS1128
 EP type number : 0 413 508 103
 Governor
 Governor design. : RQ300/1150MW63-3
 Governor no. : 0 420 082 030

Customer-spec. information
 Customer : KHD

Engine : BF 8L 513

1st version kW : 225.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 740 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
 : (3.05...3.25)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 12.90...13.00

Del. quantity cm³/ : 14.2...14.4

100 s: (14.0...14.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.5...6.7

Del. quantity cm³/ : 1.3...1.7

100 s: (1.1...1.9)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1280

travel mm : 9.00...9.80

2nd speed rpm : 1220

travel mm : 6.60...6.80

3rd speed rpm : 650

travel mm : 5.70...6.30

4th speed rpm : 300

travel mm : 1.10...1.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 1000

Del. quantity : 142.0...144.0

1000 : (140.0...146.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 29...37

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 11.90
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1260...1290
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 7...15
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.6

Testing:
Speed rpm : 100
Minimum rack travel: 8.20
Speed rpm : 300
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION
Speed rpm : 320...400

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 12.90...13.00
2nd speed rpm : 700
Rack travel in m: 13.20...13.30
3rd speed rpm : 800
Rack travel in m: 12.00...13.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 660
Rack travel mm : 12.70...12.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.90...12.00
2nd pressure hPa : 530
Rack travel in m: 12.20...12.50
3rd pressure hPa : 1000

Rack travel in m: 13.20...13.30

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 700
Del.quantity cm3/ : 142.5...145.5
1000 s: (140.0...148.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 450
Del.quantity cm3/ : 107.0...109.0
1000 s: (105.0...111.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...150.0
1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.50...6.70
Del.quantity cm3/ : 13.0...17.0
1000 s: (11.0...19.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 14,3D13
Edition : 13.10.89
Replaces : 11.03.88
Test oil : ISO-4113

Combination no. : 0 403 548 026

Injection pump
Pump designation : PE8MW100/720LS1128
EP type number : 0 413 508 103
Governor
Governor design. : RQ300/1150MW63-4
Governor no. : 0 420 082 031

Customer-spec. information
Customer : KHD

Engine : BF 8L 513

1st version kW : 243.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 740 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
: (3.05...3.25)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
4- 3

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.60...13.70

Del.quantity cm³/ : 15.1...15.3

100 s: (14.9...15.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0
Rack travel in mm : 6.6...6.8
Del.quantity cm³/ : 1.3...1.7
100 s: (1.1...1.9)

Spread cm³ : 0.3
100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1280
travel mm : 9.20...9.60
2nd speed rpm : 1220
travel mm : 6.60...6.80
3rd speed rpm : 420
travel mm : 4.20...4.80
4th speed rpm : 300
travel mm : 1.20...1.40

GUIDE SLEEVE POSITION

Control-lever position
Degree: -2
Speed rpm : 600
Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1150
Aneroid pressure h: 1000
Del.quantity : 151.0...153.0
1000 : (149.0...155.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 30...38

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 12.60
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1275...1310
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...16
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.7

Testing:
Speed rpm : 100
Minimum rack travel: 8.20
Speed rpm : 300
Rack travel in mm : 6.60...6.80

CONSTANT REGULATION
Speed rpm : 320...400

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 710
Rack travel mm : 13.00...13.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.80...11.9.
2nd pressure hPa : 530
Rack travel in m: 12.20...12.50
3rd pressure hPa : 1000
Rack travel in m: 13.60...13.70

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 450
Del.quantity cm³/ : 108.0...110.0
1000 s: (106.0...112.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...150.0
1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.60...6.80
Del.quantity cm³/ : 13.0...17.0
1000 s: (11.0...19.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 13,4D16
Edition : 06.10.89
Replaces : 16.06.89
Test oil : ISO-4113

Combination no. : 0 403 548 034

Injection pump
Pump designation : PE8MW100/720LS1128
EP type number : 0 413 508 103
Governor
Governor design. : RQ300/1150MW63-6
Governor no. : 0 420 082 038

Customer-spec. information
Customer : KHD

Engine : BF 8L 513

1st version kW : 243.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test Lines : 1 680 740 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
: (3.05...3.25)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
4- 3

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.60...13.70

Del.quantity cm³/ : 15.1...15.3

100 s: (14.9...15.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.6...6.8

Del.quantity cm³/ : 1.3...1.7

100 s: (1.1...1.9)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1280

travel mm : 9.70...10.30

2nd speed rpm : 1210

travel mm : 7.40...7.60

3rd speed rpm : 650

travel mm : 5.20...5.80

4th speed rpm : 300

travel mm : 0.80...1.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 750

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 1000

Del.quantity : 151.0...153.0

1000 : (149.0...155.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 40...48

Setting point:
Speed rpm : 750
Rack travel in mm : 15.5

Testing:
1st rack travel in: 12.60
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1275...1310
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...16
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.7

Testing:
Speed rpm : 100
Minimum rack travel: 8.20
Speed rpm : 300
Rack travel in mm : 6.60...6.80
Rack travel in mm : 2.00
Speed rpm : 500...540

CONSTANT REGULATION
Speed rpm : 320...400

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 710
Rack travel mm : 13.00...13.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.80...11.90
2nd pressure hPa : 530
Rack travel in m: 12.20...12.50
3rd pressure hPa : 1000
Rack travel in m: 13.60...13.70

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 450
Del.quantity cm³/ : 108.0...110.0
1000 s: (106.0...112.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...150.0
1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.60...6.80
Del.quantity cm³/ : 13.0...17.0
1000 s: (11.0...19.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 12,6 b
 Edition : 21.04.89
 Replaces : 1.66
 Test oil : ISO-4113
 Combination no. : 0 405 048 204
 Injection pump
 Pump designation : PE8AM80D310RS2004
 EP type number : 0 415 088 201
 Governor
 Governor design. : RQ200/1150AB314DL
 Governor no. : 0 420 202 091

Customer-spec. information
 Customer : KHD

Engine : F8L714A

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 012

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
 : (2.10...2.30)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1130

Rack travel in mm : 11.50...11.60

Del.quantity cm3/ : 7.1...7.2

100 s: (6.9...7.3)

Spread cm3 : 0.2

100 s: (0.4)

2nd speed rpm : 200.0

Rack travel in mm : 7.4...7.6

Del.quantity cm3/ : 0.7...1.5

100 s: (0.5...1.6)

Spread cm3 : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 500

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1130

Del.quantity : 71.0...72.0

1000 : (69.5...73.5)

Spread cm3 : 2.50

1000 : (4.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 500

Rack travel in mm : 16.0

Testing:

1st rack travel in: 10.50

Speed rpm : 1195...1210

2nd rack travel in: 4.00

Speed rpm : 1230...1260

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 200
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack trave: 7.50
Speed rpm : 200
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 270...310

TORQUE CONTROL

Dimension a mm : 0.55
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 10.50...10.60
2nd speed rpm : 500
Rack travel in m: 12.70...12.80
3rd speed rpm : 705
Rack travel in m: 12.30...12.50
4th speed rpm : 900
Rack travel in m: 11.70...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1030
Del.quantity cm3/ : 70.0...72.0
1000 s: (68.0...74.0)
Speed rpm : 600
Del.quantity cm3/ : 72.0...75.0
1000 s: (70.0...77.0)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1195...1210

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.50...21.00

Remarks:

:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PER 17,4 a
 Edition : 02.10.89
 Replaces : 2.11.87
 Test oil : ISO-4113
 Combination no. : 0 405 638 201
 Injection pump
 Pump designation : PE8PM120A12ORS7119
 EP type number : 0 415 628 201
 Governor
 Governor design. : RQ350/1150PA791
 Governor no. : 0 421 801 340

Customer-spec. information
 Customer : PERKINS

Engine : MCY 80

1st version kW : 410.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 6- 5- 4- 8-
 7- 2

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 13.60...13.70

Del.quantity cm3/ : 25.7...25.9

100 s: (25.4...26.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 4.8...5.0
 Del.quantity cm3/ : 1.7...2.3
 100 s: (1.4...2.6)
 Spread cm3 : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 750

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Aneroid pressure h: 1200
 Del.quantity : 257.0...259.0
 1000 : (254.0...262.0)
 Spread cm3 : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:
 Speed rpm : 750
 Rack travel in mm : 15.5

Testing:

1st rack travel in: 12.60
Speed rpm : 1195...1210
2nd rack travel in: 4.00
Speed rpm : 1285...1315
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.9

Testing:

Speed rpm : 250
Minimum rack travel: 6.40
Speed rpm : 350
Rack travel in mm : 4.80...5.00
Rack travel in mm : 2.00
Speed rpm : 390...430

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.60...13.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.80...11.00
2nd pressure hPa : 890
Rack travel in m: 12.90...13.00
3rd pressure hPa : 590
Rack travel in m: 11.30...11.50

START CUT-OUT

Speed 1/min : 300 (0)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 700
Del.quantity cm³/ : 259.0...265.0
1000 s: (256.0...268.0)
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 192.0...196.0
1000 s: (190.0...198.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.60
Speed rpm : 1195...1210

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 195.0...215.0
1000 s: (192.0...218.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.80...5.00
Del.quantity cm³/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MTU 37,4 C
Edition : 18.1.89
Replaces : 20.10.87
Test oil : ISO-4113

Combination no. : 0 406 039 111

Injection pump
Pump designation : PE10ZWM160/120RS1043
EP type number : 0 416 069 001
Governor
Governor design. : RQU425/1200ZWA68R
Governor no. : 0 422 407 036

Customer-spec. information
Customer : MTU

Engine : MB 838 KA

1st version kW : 100
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 40...45

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 443 022

Opening
pressure, bar : 172...175

Test lines : 1 680 750 016

Outside diameter
x Wall thickness
x Length mm : 8,00X2,00X1500

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.50...2.60
: (2.45...2.65)
Rack travel in mm : 12.00
Firing order : 10-3-4-5-6-7-8-1-2-9

Phasing : 0-27-72-99-144-171-
216-243-288-315
Tolerance + - ° : 0.50(0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 15.00

Del.quantity cm3/ : 51.5...53.5

100 s: (51.0...54.0)

Spread cm3 : 1.5

100 s: (2.2)

2nd speed rpm : 1000

Rack travel in mm : 9.00

Del.quantity cm3/ : 26.5...28.5
100 s: (26.0...29.0)

Spread cm3 : 1.5
100 s: (2.2)

3rd speed rpm : 300

Rack travel in mm : 9.00

Del.quantity cm3/ : 15.0...18.0
100 s: (14.5...18.5)

Spread cm3 : 2.0
100 s: (3.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1200

Rack travel in mm : 18.00...18.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 505.0...515.0
1000 : (500.0...520.0)

Spread cm3 : 15.0
1000 : (22.0)

RATED SPEED

1st version

Control lever

position degrees: 52...58

Testing:

1st rack travel in: 15.00

Speed rpm : 1200

2nd rack travel in: 14.00

Speed rpm : 1225...1240

3rd rack travel in: 4.00
Speed rpm : 1312...1352
4th rack travel in: 1339...1389
Speed rpm : 0.01

LOW IDLE 1
Control Lever
position degrees: 20...26
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 6.80

Testing:
Speed rpm : 200
Minimum rack trave: 18.00
Speed rpm : 300
Rack travel in mm : 12.60...16.60
Rack travel in mm : 6.80
Speed rpm : 425
Speed rpm : 1275
Maximum rack trave: 0.01
Rack travel in mm : 1.50
Speed rpm : 600...1200

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.00
Speed rpm : 1225...1240

HIGH IDLE

1st version
Rack travel in mm : 4.00
Spread cm3 : 12.0
1000 s: (-)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 6.80
Del.quantity cm3/ : 104.0...111.0
1000 s: (-)
Spread cm3 : 10.0
1000 s: (-)

Remarks:

:

Set idle stop at 425 min -1 to a
control-rod travel of 6.8 mm.
Limit shutoff stop screw to 1.0 mm.

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KIR 6,1 a
Edition : 23.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 030 432

Injection pump
Pump designation : PES6A80D410RS1334
Governor
Governor design. : RSV325...1150A8B2134
L

Customer-spec. information
Customer : KHD

Engine : F6L 912

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 1,90...2,00
: (1,85...2,05)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del.quantity cm³/ : 4,40...4,60

100 s : (-)

Spread cm³ : 0,3

100 s : (-)

2nd speed rpm : 200
Rack travel in mm : 6,00
Del.quantity cm³/ : 0,2...0,8
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3

Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1150
Del.quantity : 52,4...55,4
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 50...58

Testing:
1st rack travel in: 8,00
Speed rpm : 1190...1200
2nd rack travel in: 5,50
Speed rpm : 1220...1240
4th rack travel in: 1450
Speed rpm : 0,30...1,70

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 6,00

Testing:

Speed rpm : 200
Minimum rack travel: 19,00
Speed rpm : 325
Rack travel in mm : 5,80...6,20

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150
Rack travel in m: 9,00
2nd speed rpm : 900
Rack travel in m: 9,70...9,90
3rd speed rpm : 750
Rack travel in m: 10,30
4th speed rpm : 600
Rack travel in m: 10,70...10,90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 52,4...55,4
1000 s: (49,4...58,4)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1190...1200

HIGH IDLE

1st version

Speed rpm : 1230
Rack travel in mm : 5,50

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 2,6 a
Edition : 24.11.89
Replaces : 29.2.88
Test oil : ISO-4113

Combination no. : 9 400 083 422

Injection pump
Pump designation : PES3A80D320/3RS1264
EP type number : 9 400 083 053
Governor
Governor design. : RSV350...1200A2B627R
Governor no. : 9 420 082 194

Customer-spec. information
Customer : MWM

Engine : D225-3

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 012

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
: (2.15...2.35)
Rack travel in mm : 9.00...12.00
Firing order : 1- 2- 3

Phasing : 0-120-240
Tolerance + - ° : 0.50 (0.75)
Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
& maximum rack tra: 21.00
Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1200
Rack travel in mm : 9.40...9.50
Del.quantity cm3/ : 5.0...5.1
100 s: (4.9...5.3)
Spread cm3 : 0.2
100 s: (0.4)

2nd speed rpm : 350.0
Rack travel in mm : 5.9...6.1
Del.quantity cm3/ : -
100 s: (-)
Spread cm3 : 0.2
100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1200
Del.quantity : 50.5...51.5
1000 : (49.0...53.0)
Spread cm3 : 2.50
1000 : (4.00)

RATED SPEED

1st version
Control lever
position degrees: 46...54

Testing:
1st rack travel in: 8.40

Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1285...1315
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 490...550

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 9.40...9.50
2nd speed rpm : 500
Rack travel in m: 9.40...9.60
5th speed rpm : 400
Rack travel in m: 10.60...11.20

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.40
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Spread cm³ : 2.00
1000 s: (3.50)

Remarks:

:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 2,6 a 1
Edition : 24.11.89
Replaces : 29.2.88
Test oil : ISO-4113

Combination no. : 9 400 083 423

Injection pump
Pump designation : PES3A80D320/3RS1264
EP type number : 9 400 083 053
Governor
Governor design. : RSV350...900A7B627R
Governor no. : 9 420 082 193

Customer-spec. information
Customer : MWM

Engine : D225-3

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 012

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
: (2.15...2.35)

Rack travel in mm : 9.00...12.00
Firing order : 1- 2- 3

Phasing : 0-120-240

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
& maximum rack tra: 21.00
Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.20...10.30

Del. quantity cm³/ : 5.1...5.2

100 s: (5.0...5.4)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del. quantity cm³/ : -
100 s: (-)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del. quantity : 51.5...52.5

1000 : (50.0...54.0)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control Lever

position degrees: 50...58

Testing:

1st rack travel in: 9.20

Speed rpm : 940...945
2nd rack travel in: 4.00
Speed rpm : 975...980
4th rack travel in: 1100
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 450...510

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10.20...10.30
2nd speed rpm : 500
Rack travel in m: 10.20...10.40
5th speed rpm : 400
Rack travel in m: 11.40...12.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 940...945

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Spread cm³ : 2.00
1000 s: (3.50)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 3,4 b
Edition : 24.11.89
Replaces : 29.2.88
Test oil : ISO-4113

Combination no. : 9 400 083 426

Injection pump
Pump designation : PES4A80D320/3RS1265
EP type number : 9 400 083 055
Governor
Governor design. : RSV350...1200A2B627R
Governor no. : 9 420 082 194

Customer-spec. information
Customer : MWM

Engine : D225-4

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 012

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
: (2.15...2.35)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
& maximum rack tra: 21.00
Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 9.40...9.50

Del.quantity cm³/ : 5.0...5.1

100 s: (4.9...5.3)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 350.0
Rack travel in mm : 5.9...6.1
Del.quantity cm³/ : -

100 s: (-)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 50.5...51.5

1000 : (49.0...53.0)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 8.40

Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1285...1315
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 490...550

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 9.40...9.50
2nd speed rpm : 500
Rack travel in m: 9.40...9.60
5th speed rpm : 400
Rack travel in m: 10.60...11.20

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.40
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Spread cm³ : 2.00
1000 s: (3.50)

Remarks:

:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 3,4 b 1
Edition : 24.11.89
Replaces : 1.3.88
Test oil : ISO-4113

Combination no. : 9 400 083 427

Injection pump
Pump designation : PES4A80D320/3RS1265
EP type number : 9 400 083 055
Governor
Governor design. : RSV350...900A7B627R
Governor no. : 9 420 082 193

Customer spec. information
Customer : MWM

Engine : D225-4

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 012

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
: (2.15...2.35)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
& maximum rack tra: 21.00
Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.20...10.30

Del.quantity cm3/ : 5.1...5.2

100 s: (5.0...5.4)

Spread cm3 : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : -

100 s: (-)

Spread cm3 : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 51.5...52.5

1000 : (50.0...54.0)

Spread cm3 : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 9.20

Speed rpm : 940...945
2nd rack travel in: 4.00
Speed rpm : 975...980
4th rack travel in: 1100
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 450...510

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10.20...10.30
2nd speed rpm : 500
Rack travel in m: 10.20...10.40
5th speed rpm : 400
Rack travel in m: 11.40...12.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 940...945

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Spread cm³ : 2.00
1000 s: (3.50)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 5,1 a
Edition : 24.11.89
Replaces : 1.3.88
Test oil : ISO-4113

Combination no. : 9 400 083 429

Injection pump
Pump designation : PES6A80D320/3RS1261
EP type number : 9 400 083 057
Governor
Governor design. : RSV350...900A7B627R
Governor no. : 9 420 082 193

Customer-spec. information
Customer : MWM

Engine : D225-6

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 012

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
: (2.15...2.35)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
& maximum rack tra: 21.00
Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.20...10.30

Del.quantity cm3/ : 5.1...5.2

100 s: (5.0...5.4)

Spread cm3 : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : -

100 s: (-)

Spread cm3 : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 51.5...52.5

1000 : (50.0...54.0)

Spread cm3 : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 9.20

Speed rpm : 940...945
2nd rack travel in: 4.00
Speed rpm : 975...980
4th rack travel in: 1100
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 450...510

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10.20...10.30
2nd speed rpm : 500
Rack travel in m: 10.20...10.40
5th speed rpm : 400
Rack travel in m: 11.40...12.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 940...945

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Spread cm³ : 2.00
1000 s: (3.50)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 5,1 a 1
 Edition : 24.11.89
 Replaces : 1.3.88
 Test oil : ISO-4113
 Combination no. : 9 400 083 430
 Injection pump
 Pump designation : PES6A80D320/3RS1261
 EP type number : 9 400 083 057
 Governor
 Governor design. : RSV350...1200A2B627R
 Governor no. : 9 420 082 194

Customer-spec. information
 Customer : MWM

Engine : D225-6

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 012
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 003
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.20...2.30
 : (2.15...2.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1200
 Rack travel in mm : 9.40...9.50
 Del.quantity cm3/ : 5.0...5.1
 100 s: (4.9...5.3)
 Spread cm3 : 0.2
 100 s: (0.4)
 2nd speed rpm : 350.0
 Rack travel in mm : 5.9...6.1
 Del.quantity cm3/ : -
 100 s: (-)
 Spread cm3 : 0.2
 100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Del.quantity : 50.5...51.5
 1000 : (49.0...53.0)
 Spread cm3 : 2.50
 1000 : (4.00)

RATED SPEED

1st version
 Control lever
 position degrees: 46...54

Testing:
 1st rack travel in: 8.40

Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1285...1315
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 490...550

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 9.40...9.50
2nd speed rpm : 500
Rack travel in m: 9.40...9.60
5th speed rpm : 400
Rack travel in m: 10.60...11.20

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.40
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Spread cm³ : 2.00
1000 s: (3.50)

Remarks:

:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 6,6 g
Edition : 02.05.89
Replaces : 1.9.88
Test oil : ISO-4113

Combination no. : 9 400 085 248

Injection pump
Pump designation : PES6A95D412RS2709
EP type number : 9 400 083 099
Governor
Governor design. : RQV350...1400AB1202-
1L
Governor no. : 9 420 080 220

Customer-spec. information
Customer : FORD (FTO)

Engine : 6.6 1 NA

1st version kW : 108.0
Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25
: (3.10...3.30)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
& maximum rack tra: 21.00
Difference ° CS : 2.00...3.00

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.70...10.80

Del.quantity cm³/ : 7.9...8.0

100 s: (7.7...8.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...6.6

Del.quantity cm³/ : 0.7...1.1

100 s: (0.5...1.3)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1420

travel mm : 8.50...8.60

2nd speed rpm : 350

travel mm : 1.30...1.60

3rd speed rpm : 700

travel mm : 4.20...4.60

4th speed rpm : 1100

travel mm : 6.10...6.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1420

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400
Del.quantity : 79.0...80.0
1000 : (77.0...82.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 60...66

Testing:
1st rack travel in: 9.70
Speed rpm : 1450...1460
2nd rack travel in: 4.00
Speed rpm : 1550...1580
4th rack travel in: 1720
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 10...18

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION
Speed rpm : 460...530

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 800
Del.quantity cm³/ : 70.0...73.0
1000 s: (67.5...75.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.70
Speed rpm : 1450...1460

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 112.0...122.0
1000 s: (-)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.40...6.60
Del.quantity cm³/ : 7.0...11.0
1000 s: (5.0...13.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 6,6 j
 Edition : 24.11.89
 Replaces : 1.9.88
 Test oil : ISO-4113

Combination no. : 9 400 085 266

Injection pump
 Pump designation : PES6A95D410RS2751
 EP type number : 9 400 084 013
 Governor
 Governor design. : RSV650...1250A8C2231
 L
 Governor no. : 9 420 083 229

Customer-spec. information
 Customer : FORD (FNH)

Engine : 6,6 L NA

1st version kW : 101.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25
 : (3.10...3.30)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 6.00...7.00

BASIC SETTING

1st speed rpm : 1220

Rack travel in mm : 11.00...11.10

Del.quantity cm³/ : 8.1...8.3

100 s: (7.8...8.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 650.0
 Rack travel in mm : 6.7...6.9
 Del.quantity cm³/ : 0.7...1.1
 100 s: (0.4...1.3)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1220
 Del.quantity : 81.0...83.0
 1000 : (78.5...85.5)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 57...65

Testing:
1st rack travel in: 10.00
Speed rpm : 1265...1270
2nd rack travel in: 4.00
Speed rpm : 1295...1300
4th rack travel in: 1420
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 6.3

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 650
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 730...790

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 800
Del.quantity cm3/ : 69.0...73.0
1000 s: (67.0...75.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.00
Speed rpm : 1265...1270

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...170.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 650
Rack travel in mm : 6.70...6.90
Del.quantity cm3/ : 7.0...11.0
1000 s: (4.5...13.5)

Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

APPLICATION :

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 6,6 j 1
Edition : 24.11.89
Replaces : 1.9.88
Test oil : ISO-4113

Combination no. : 9 400 085 267

Injection pump
Pump designation : PES6A95D410RS2751
EP type number : 9 400 084 013
Governor
Governor design. : RSV650...1250A8C2231
-1L
Governor no. : 9 420 083 230

Customer-spec. information
Customer : FORD (FNH)

Engine : 6,6 L TC

1st version kW : 112.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.00

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25
: (3.10...3.30)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
& maximum rack tra: 21.00
Difference ° CS : 6.00...7.00

BASIC SETTING

1st speed rpm : 1220

Rack travel in mm : 11.90...12.00

Del. quantity cm3/ : 9.1...9.3

100 s: (8.8...9.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 650.0
Rack travel in mm : 6.7...6.9
Del. quantity cm3/ : 0.7...1.1
100 s: (0.4...1.3)
Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : 3.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1220
Del. quantity : 91.0...93.0
1000 : (88.5...95.5)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 47...55

Testing:
1st rack travel in: 10.90
Speed rpm : 1265...1270
2nd rack travel in: 4.00
Speed rpm : 1300...1305
4th rack travel in: 1420
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 6.3

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 650
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 730...790

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 800
Del.quantity cm³/ : 77.0...81.0
1000 s: (75.0...83.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.90
Speed rpm : 1265...1270

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 650
Rack travel in mm : 6.70...6.90
Del.quantity cm³/ : 7.0...11.0
1000 s: (4.5...13.5)

Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

APPLICATION

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 6,6 j 2
 Edition : 24.11.89
 Replaces : 1.9.88
 Test oil : ISO-4113

Combination no. : 9 400 085 299

Injection pump
 Pump designation : PES6A95D410RS2751
 EP type number : 9 400 084 013
 Governor
 Governor design. : RSV650...1250A8C2231
 -2L
 Governor no. : 9 420 083 236

Customer-spec. information
 Customer : FORD (FNH)

Engine : 6,6 L TC

1st version kW : 123.8
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25
 : (3.10...3.30)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 6.00...7.00

BASIC SETTING

1st speed rpm : 1220

Rack travel in mm : 12.50...12.60

Del.quantity cm³/ : 9.8...10.0

100 s: (9.5...10.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 650.0

Rack travel in mm : 6.7...6.9

Del.quantity cm³/ : 0.7...1.1
 100 s: (0.4...1.3)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1220

Del.quantity : 98.0...100.0

1000 : (95.5...102.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 47...55

Testing:

1st rack travel in: 11.50
Speed rpm : 1265...1270
2nd rack travel in: 4.00
Speed rpm : 1300...1305
4th rack travel in: 1420
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 6.3

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 650
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 730...790

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm3/ : 83.0...87.0
1000 s: (81.0...89.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1265...1270

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...170.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 650
Rack travel in mm : 6.70...6.90
Del.quantity cm3/ : 7.0...11.0
1000 s: (4.5...13.5)

Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

APPLICATION

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 g
Edition : 24.11.89
Replaces : 15.8.89
Test oil : ISO-4113

Combination no. : 9 400 085 305

Injection pump
Pump designation : PES6A95D410RS2772
EP type number : 9 400 084 018
Governor
Governor design. : RQV300...1300AB1066-
6L
Governor no. : 9 420 080 265

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM 366 A

1st version kW : 125.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 006

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
: (3.15...3.35)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 11

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.40...10.50

Del.quantity cm3/ : 8.9...9.1

100 s: (8.7...9.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.9...7.1

Del.quantity cm3/ : 0.8...1.4

100 s: (0.6...1.6)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 0.80...1.30

2nd speed rpm : 500
travel mm : 2.30...2.80

3rd speed rpm : 750
travel mm : 4.10...4.30

4th speed rpm : 1500
travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 89.0...91.0

1000 : (87.0...93.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 55...63

Testing:

1st rack travel in: 9.40

Speed rpm : 1340...1350

2nd rack travel in: 4.00

Speed rpm : 1460...1490

4th rack travel in: 1630

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 12...20

Testing:

Speed rpm : 100

Minimum rack travel: 8.00

Speed rpm : 300

Rack travel in mm : 6.90...7.10

CONSTANT REGULATION

Speed rpm : 420...550

TORQUE CONTROL

Dimension a mm : 0.50

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 10.40...10.50

2nd speed rpm : 800

Rack travel in m: 10.90...11.00

4th speed rpm : 1000

Rack travel in m: 10.60...10.80

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 700

Rack travel mm : 10.90...11.00

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.50...9.70

2nd pressure hPa : 450

Rack travel in m: 10.50...10.60

3rd pressure hPa : 300

Rack travel in m: 9.80...10.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 800

Del.quantity cm³/ : 86.0...89.0

1000 s: (83.5...91.5)

Aneroid pressure h: 700

Speed rpm : 1000

Del.quantity cm³/ : 88.0...91.0

1000 s: (85.5...93.5)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ : 59.0...61.0

1000 s: (57.0...63.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 95.0...115.0

1000 s: (-)

Rack travel in mm : 14.50...14.70

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 f
Edition : 24.11.89
Replaces : 15.8.89
Test oil : ISO-4113

Combination no. : 9 400 085 307

Injection pump
Pump designation : PES4A95D410RS2774
EP type number : 9 400 084 019
Governor
Governor design. : RQV300...1300AB1228-1L
Governor no. : 9 420 080 268

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM 364 A

1st version kW : 85.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 006

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
: (3.15...3.45)

Rack travel in mm : 9.00...12.00
Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.60...10.70

Del.quantity cm3/ : 9.0...9.2

100 s: (8.8...9.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.9...7.1

Del.quantity cm3/ : 0.6...1.2

100 s: (0.4...1.4)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.80...1.30

2nd speed rpm : 500

travel mm : 2.30...2.80

3rd speed rpm : 750

travel mm : 4.10...4.30

4th speed rpm : 1500

travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 90.0...92.0

1000 : (88.0...94.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

1st rack travel in: 9.60

Speed rpm : 1340...1350

2nd rack travel in: 4.00

Speed rpm : 1470...1500

4th rack travel in: 1640

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 12...20

Testing:

Speed rpm : 100

Minimum rack travel: 8.00

Speed rpm : 300

Rack travel in mm : 6.90...7.10

CONSTANT REGULATION

Speed rpm : 420...550

TORQUE CONTROL

Dimension a mm : 0.40

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 10.60...10.70

2nd speed rpm : 800

Rack travel in m: 11.00...11.10

4th speed rpm : 1000

Rack travel in m: 10.80...11.00

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 700

Rack travel mm : 11.00...11.10

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.80...10.00

2nd pressure hPa : 410

Rack travel in m: 10.80...10.90

3rd pressure hPa : 310

Rack travel in m: 10.10...10.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 800

Del.quantity cm³/ : 84.5...87.5

1000 s: (82.0...90.0)

Aneroid pressure h: 700

Speed rpm : 1000

Del.quantity cm³/ : 87.5...90.5

1000 s: (85.0...93.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ : 61.0...63.0

1000 s: (59.0...65.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 95.0...115.0

1000 s: (-)

Rack travel in mm : 14.00...14.20

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 f 1
 Edition : 24.11.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 309
 Injection pump
 Pump designation : PES4A95D410RS2774
 EP type number : 9 400 084 019
 Governor
 Governor design. : RQV300...1400AB1065-18L
 Governor no. : 9 420 080 278

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 364

1st version kW : 66.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 006

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.45)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.08)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.30...9.40

Del.quantity cm3/ : 6.6...6.8

100 s: (6.4...7.0)

Spread cm3 : 0.3

100 s: (0.3)

2nd speed rpm : 300.0

Rack travel in mm : 7.1...7.3

Del.quantity cm3/ : 0.9...1.5

100 s: (0.7...1.7)

Spread cm3 : 0.3

100 s: (0.3)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.80...1.30

2nd speed rpm : 500
 travel mm : 2.30...2.80

3rd speed rpm : 750
 travel mm : 4.10...4.30

4th speed rpm : 1500
 travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 66.0...68.0

1000 : (64.0...70.0)

Spread cm3 : 3.50

1000 : (3.50)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

1st rack travel in: 8.30

Speed rpm : 1440...1450

2nd rack travel in: 4.00

Speed rpm : 1515...1545

4th rack travel in: 1660

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 14...22

Testing:

Speed rpm : 100

Minimum rack trave: 8.50

Speed rpm : 300

Rack travel in mm : 7.10...7.30

CONSTANT REGULATION

Speed rpm : 450...580

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600

Del.quantity cm³/ : 51.0...54.0

1000 s: (48.5...56.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.30

Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 100.0...110.0

1000 s: (-)

Rack travel in mm : 14.20...14.40

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 g 2
 Edition : 24.11.89
 Replaces : 15.8.89
 Test oil : ISO-4113
 Combination no. : 9 400 085 310
 Injection pump
 Pump designation : PES6A95D410RS2772
 EP type number : 9 400 084 018
 Governor
 Governor design. : RQV300...1300AB1066-8L
 Governor no. : 9 420 080 279

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 366 LA

1st version kW : 155.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 006

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.08)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.10...11.20

Del.quantity cm³/ : 9.8...10.0

100 s: (9.6...10.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.9...7.1

Del.quantity cm³/ : 0.8...1.4

100 s: (0.6...1.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.80...1.30

2nd speed rpm : 500

travel mm : 2.30...2.80

3rd speed rpm : 750

travel mm : 4.10...4.30

4th speed rpm : 1500

travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 98.0...100.0

1000 : (96.0...102.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 55...63

Testing:
1st rack travel in: 10.10
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1470...1500
4th rack travel in: 1640
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 12...20

Testing:
Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION
Speed rpm : 420...550

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.10...11.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.40...9.70
2nd pressure hPa : 450
Rack travel in m: 10.60...10.70
3rd pressure hPa : 300
Rack travel in m: 9.90...10.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 700
Del.quantity cm³/ : 86.0...89.0
1000 s: (83.5...91.5)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 59.5...61.5
1000 s: (57.5...63.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.10
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 95.0...115.0
1000 s: (-)
Rack travel in mm : 14.50...14.70

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,2 a2
 Edition : 24.11.89
 Replaces : 7.7.89
 Test oil : ISO-4113
 Combination no. : 9 400 087 357
 Injection pump
 Pump designation : PE6P120A320RS3178
 EP type number : 0 411 826 752
 Governor
 Governor design. : RQV250...1025PA657-10
 Governor no. : 0 421 813 567

Customer spec. information
 Customer : VOLVO

Engine : TD 122 FS

1st version kW : 287.0
 Rated speed : 2050

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.00...14.10

Del. quantity cm³/ : 25.2...25.4

100 s: (24.9...25.7)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 4.8...5.1

Del. quantity cm³/ : 1.8...2.3

100 s: (1.5...2.5)

Spread cm³ : 0.5

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.10...1.30

2nd speed rpm : 500
 travel mm : 4.10...4.90

3rd speed rpm : 700
 travel mm : 6.30...6.70

4th speed rpm : 900
 travel mm : 6.30...6.70

5th speed rpm : 1025
 travel mm : 7.30...7.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1090

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200
Del.quantity : 252.0...254.0
1000 : (249.0...257.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:

1st rack travel in: 13.00
Speed rpm : 1055...1065
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 6...14

Testing:

Speed rpm : 100
Minimum rack travel: 6.40
Speed rpm : 250
Rack travel in mm : 4.80...5.10

CONSTANT REGULATION

Speed rpm : 250...400

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 14.00...14.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.00...10.20
2nd pressure hPa : 120
Rack travel in m: 10.20...10.30
3rd pressure hPa : 810
Rack travel in m: 13.30...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700

Del.quantity cm3/ : 163.0...165.0
1000 s: (160.0...168.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 1055...1065

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 220.0...240.0
1000 s: (216.0...244.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.80...5.10
Del.quantity cm3/ : 18.0...23.0
1000 s: (15.5...25.5)
Spread cm3 : 5.00
1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 r 1
Edition : 24.11.89
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 087 387

Injection pump
Pump designation : PES5P120A720LS7174
EP type number : 0 412 725 806
Governor
Governor design. : RQ300/1050PA774-2
Governor no. : 0 421 801 450

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM449 A

1st version kW : 184.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600
Rack travel in mm : 14.10...14.30
Del.quantity cm3/ : 19.6...19.8
100 s: (19.3...20.1)
Spread cm3 : 0.5
100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 6.4...7.0
Del.quantity cm3/ : 1.6...2.2
100 s: (1.3...2.5)
Spread cm3 : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -2
Speed rpm : 600
Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 650
Del.quantity : 196.0...198.0
1000 : (193.0...201.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.40
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.7

Testing:

Speed rpm : 200
Minimum rack travel: 8.70
Speed rpm : 300
Rack travel in mm : 6.40...7.00
Rack travel in mm : 2.00
Speed rpm : 485...525

TORQUE CONTROL

Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 14.40...14.60
2nd speed rpm : 750
Rack travel in m: 14.90...15.10

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 650
Rack travel mm : 14.10...14.30

Measurement

Speed 1/min : 600

1st pressure hPa : 250
Rack travel in m: 12.20...12.40
2nd pressure hPa : 400
Rack travel in m: 13.50...13.70
3rd pressure hPa : 750
Rack travel in m: 14.20...14.30 *
4th pressure hPa : 850
Rack travel in m: 14.60...14.80
5th pressure hPa : -
Rack travel in m: 11.90...12.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm3/ : 208.0...211.0
1000 s: (205.0...214.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm3/ : 216.0...220.0
1000 s: (213.0...223.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 150.0...152.0
1000 s: (147.0...155.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.40
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 12,0 a 6
Edition : 24.11.89
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 087 390
Injection pump
Pump designation : PES6P120A720LS7114-3
EP type number : 0 412 726 820
Governor
Governor design. : RQ300/1050PA911
Governor no. : 0 421 801 476

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM447 LA

1st version kW : 257.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del.quantity cm3/ : 22.9...23.1

100 s: (22.6...23.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 229.0...231.0

1000 : (226.0...234.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.70
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0
Speed rpm : 300
Rack travel in mm : 5.80...6.20
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.40
2nd speed rpm : 1050
Rack travel in m: 13.60...13.80
3rd speed rpm : 700
Rack travel in m: 14.10...14.30

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.20...11.40
2nd pressure hPa : 600
Rack travel in m: 13.10...13.30
3rd pressure hPa : 1000
Rack travel in m: 13.70...13.80 *
4th pressure hPa : 1100
Rack travel in m: 13.90...14.10
5th pressure hPa : -
Rack travel in m: 10.20...10.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1050

Del.quantity cm3/ : 229.0...233.0
1000 s: (226.0...236.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 800
Del.quantity cm3/ : 244.0...247.0
1000 s: (241.0...250.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 146.0...148.0
1000 s: (143.0...151.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.70
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,1 b1
 Edition : 24.11.89
 Replaces : 2.5.89
 Test oil : ISO-4113

Combination no. : 9 400 087 393

Injection pump
 Pump designation : PE6P120A720RS7126
 EP type number : 0 412 626 815
 Governor
 Governor design. : RQV200...1000PA725-1
 Governor no. : 0 421 813 552

Customer-spec. information
 Customer : SAAB SCANIA

Engine : DSC 11 - 18

1st version kW : 265.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.10...14.20

Del.quantity cm3/ : 23.4...23.6

100 s: (23.1...23.9)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 225.0

Rack travel in mm : 4.5...4.9

Del.quantity cm3/ : 1.5...1.9

100 s: (-)

Spread cm3 : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225

travel mm : 1.20...1.60

2nd speed rpm : 350

travel mm : 2.40...3.00

3rd speed rpm : 650

travel mm : 4.40...5.00

4th speed rpm : 1045

travel mm : 8.40...8.60

5th speed rpm : 1160

travel mm : 9.90...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1040

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 234.0...236.0
1000 : (231.0...239.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 59...67

Testing:

1st rack travel in: 13.10
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 7...15

Testing:

Speed rpm : 100
Minimum rack travel: 6.10
Speed rpm : 225
Rack travel in mm : 4.50...4.70
Rack travel in mm : 2.00
Speed rpm : 340...400

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 14.10...14.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.50...10.90
2nd pressure hPa : 510
Rack travel in m: 13.00...13.10
3rd pressure hPa : 250
Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 1000
Del.quantity cm³/ : 223.0...231.0
1000 s: (221.0...233.0)
Aneroid pressure h: -

E05

Speed rpm : 500
Del.quantity cm³/ : 150.0...154.0
1000 s: (148.0...156.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.10
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 275.0...325.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.50...4.70

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAT 10,5g11
 Edition : 24.11.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 408
 Injection pump
 Pump designation : PES6P100A720LS502
 EP type number : 9 400 087 050
 Governor
 Governor design. : RQV350...1000PA828-2
 Governor no. : 9 420 080 247

Customer-spec. information
 Customer : CATERPILLAR

Engine : 3306 DIT.

1st version kW : 140.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 9 401 087 348

Inlet press., bar : 2.00

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 2...3

Prestroke mm : 3.95...4.05
 : (3.90...4.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 10.60...10.70
 Del.quantity cm3/ : 12.2...12.4
 100 s: (12.0...12.6)
 Spread cm3 : 0.3
 100 s: (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 6.4...6.6
 Del.quantity cm3/ : 1.3...1.7
 100 s: (1.0...1.9)
 Spread cm3 : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1055
 travel mm : 8.50...8.60
 2nd speed rpm : 300
 travel mm : 1.10...1.40
 3rd speed rpm : 500
 travel mm : 3.40...3.70
 4th speed rpm : 700
 travel mm : 5.20...5.50
 5th speed rpm : 900
 travel mm : 6.80...7.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1055
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 500

Del.quantity : 122.0...124.0
1000 : (120.0...126.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 64...72

Testing:

1st rack travel in: 9.70
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1120...1150
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18

Testing:

Speed rpm : 100
Minimum rack travel: 8.50
Speed rpm : 350
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

Speed rpm : 370...440

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 500
Rack travel mm : 10.60...10.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.00...9.20
2nd pressure hPa : 145
Rack travel in m: 10.30...10.40
3rd pressure hPa : 75
Rack travel in m: 9.50...9.70

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

E07

Aneroid pressure h: 500
Speed rpm : 700
Del.quantity cm3/ : 122.0...126.0
1000 s: (120.0...128.0)
Aneroid pressure h: -
Speed rpm : 1000
Del.quantity cm3/ : 94.0...96.0
1000 s: (92.0...98.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.70
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 157.0...177.0
1000 s: (153.0...181.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.90...5.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 7,8 g
Edition : 24.11.89
Replaces : 15.8.89
Test oil : ISO-4113

Combination no. : 9 400 087 412

Injection pump
Pump designation : PES6P120A720RS3228
EP type number : 9 400 087 065
Governor
Governor design. : RQV350...1200PA863-7
Governor no. : 9 420 080 270

Customer-spec. information
Customer : FORD (FNH)

Engine : 7.8L TC

1st version kW : 138.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 9 401 087 403

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...29

Prestroke mm : 4.25...4.35
: (4.20...4.40)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 13.60...13.70

Del.quantity cm3/ : 13.7...13.9

100 s: (13.5...14.1)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 350.0
Rack travel in mm : 7.8...8.0
Del.quantity cm3/ : 2.2...2.6
100 s: (1.9...2.8)
Spread cm3 : 0.4
100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1360
travel mm : 8.40...8.50
2nd speed rpm : 1000
travel mm : 5.50...5.90
3rd speed rpm : 800
travel mm : 4.40...4.80
4th speed rpm : 500
travel mm : 2.60...3.00
5th speed rpm : 300
travel mm : 0.90...1.30

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1490
Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1200
Aneroid pressure h: 700

Del.quantity : 137.5...139.5
1000 : (135.5...141.5)
Spread cm3 : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 43...51

Testing:

1st rack travel in: 12.60
Speed rpm : 1245...1255
2nd rack travel in: 4.00
Speed rpm : 1380...1410
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 12...20

Testing:

Speed rpm : 100
Minimum rack travel: 9.50
Speed rpm : 350
Rack travel in mm : 7.80...8.00

CONSTANT REGULATION

Speed rpm : 390...460

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 13.60...13.70
2nd speed rpm : 750
Rack travel in m: 13.90...14.00
3rd speed rpm : 1050
Rack travel in m: 13.60...13.70
4th speed rpm : 900
Rack travel in m: 13.90...14.00

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 13.90...14.00

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.00...12.20
2nd pressure hPa : 325

Rack travel in m: 12.60...12.70
3rd pressure hPa : 400
Rack travel in m: 13.30...13.70

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 750
Del.quantity cm3/ : 119.0...123.0
1000 s: (117.0...125.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 71.0...75.0
1000 s: (69.0...77.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.60
Speed rpm : 1245...1255

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.80...8.00
Del.quantity cm3/ : 22.0...26.0
1000 s: (19.5...28.5)
Spread cm3 : 4.50
1000 s: (7.50)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAT 7,0 g 5
Edition : 24.11.89
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 087 414
Injection pump
Pump designation : PES4P100A720LS501
EP type number : 9 400 087 051
Governor
Governor design. : RQV350...1100PA828-3
Governor no. : 9 420 080 266

Customer-spec. information
Customer : CATERPILLAR

Engine : 3304 DIT.

1st version kW : 103.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 9 401 087 348

Inlet press., bar : 2.00

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 2...3

Prestroke mm : 3.95...4.05
: (3.90...4.10)
Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.10...11.20

Del.quantity cm3/ : 12.9...13.1

100 s: (12.7...13.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 6.4...6.6
Del.quantity cm3/ : 1.5...1.9
100 s: (1.2...2.1)

Spread cm3 : 0.3
100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1150
travel mm : 8.50...8.60

2nd speed rpm : 350
travel mm : 1.30...1.50

3rd speed rpm : 500
travel mm : 2.90...3.20

4th speed rpm : 700
travel mm : 4.50...4.80

5th speed rpm : 900
travel mm : 6.00...6.20

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1

Speed rpm : 1150
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Aneroid pressure h: 500

Del.quantity : 129.0...131.0
1000 : (127.0...133.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:
1st rack travel in: 10.10
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 9...17

Testing:
Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 350
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION
Speed rpm : 370...440

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 500
Rack travel mm : 11.10...11.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.00...8.20
2nd pressure hPa : 290
Rack travel in m: 10.20...10.30
3rd pressure hPa : 125
Rack travel in m: 8.80...9.00

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

E11

Aneroid pressure h: 500
Speed rpm : 700
Del.quantity cm3/ : 128.0...132.0
1000 s: (126.0...134.0)
Aneroid pressure h: -
Speed rpm : 1100
Del.quantity cm3/ : 81.0...83.0
1000 s: (79.0...85.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.10
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 157.0...177.0
1000 s: (153.0...181.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.10...5.30

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 7,8 h
Edition : 24.11.89
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 087 416

Injection pump
Pump designation : PES6P110A720RS3226
EP type number : 9 400 087 066
Governor
Governor design. : RQV350...1000PA863-8
Governor no. : 9 420 080 271

Customer-spec. information
Customer : FORD (FNH)

Engine : 7,8 L TC

1st version kW : 160.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 9 401 087 403

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 468 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.55...4.65
: (4.50...4.70)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.70...12.80

Del.quantity cm3/ : 13.8...14.0

100 s: (13.6...14.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 6.9...7.1

Del.quantity cm3/ : 2.7...3.1

100 s: (2.5...3.4)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1200

travel mm : 9.30...9.70

2nd speed rpm : 1000

travel mm : 6.90...7.10

3rd speed rpm : 500

travel mm : 2.20...3.00

4th speed rpm : 350

travel mm : 1.40...1.70

5th speed rpm : 250

travel mm : 0.50...1.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1220

Rack travel in mm : 7.00...9.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 900

Del.quantity : 138.0...140.0
1000 : (136.0...142.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 42...50

Testing:
1st rack travel in: 11.70
Speed rpm : 1055...1065
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19

Testing:
Speed rpm : 100
Minimum rack travel: 12.00
Speed rpm : 350
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION

Speed rpm : 390...460

TORQUE CONTROL

Dimension a mm : 1.20
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 12.70...12.80
2nd speed rpm : 700
Rack travel in m: 13.90...14.00
3rd speed rpm : 850
Rack travel in m: 13.20...13.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.90...14.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.40...10.60
2nd pressure hPa : 405
Rack travel in m: 11.30...11.40
3rd pressure hPa : 695

Rack travel in m: 13.00...13.30

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 700
Del.quantity cm3/ : 153.0...157.0
1000 s: (151.0...155.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 79.0...81.0
1000 s: (77.0...83.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1055...1065

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 147.0...167.0
1000 s: (142.0...172.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.90...7.10
Del.quantity cm3/ : 27.5...31.5
1000 s: (25.0...34.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Delivery-valve spring pre-tension
3.0...3.2 mm.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 10,0 v 1
 Edition : 24.11.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 423
 Injection pump
 Pump designation : PES5P120A720LS7175
 EP type number : 0 412 725 807
 Governor
 Governor design. : RQ300/1050PA774-4
 Governor no. : 0 421 801 453

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM449 LA

1st version kW : 221.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del.quantity cm³/ : 23.5...23.7

100 s: (23.2...24.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...5.9

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 235.0...237.0

1000 : (232.0...240.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.00
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.7

Testing:

Speed rpm : 200
Minimum rack travel: 7.60
Speed rpm : 300
Rack travel in mm : 5.60...5.90
Rack travel in mm : 2.00
Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : 0.65
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.00...13.20
2nd speed rpm : 750
Rack travel in m: 14.40...14.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 600

1st pressure hPa : 200
Rack travel in m: 11.00...11.20
2nd pressure hPa : 450
Rack travel in m: 13.00...13.20
3rd pressure hPa : 1000
Rack travel in m: 13.70...13.80 *
4th pressure hPa : 1125
Rack travel in m: 14.10...14.30
5th pressure hPa : -
Rack travel in m: 10.00...10.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400
Speed rpm : 1050
Del.quantity cm3/ : 228.0...231.0
1000 s: (225.0...234.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1400
Speed rpm : 750
Del.quantity cm3/ : 250.0...254.0
1000 s: (247.0...257.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 146.0...148.0
1000 s: (143.0...151.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,1 i
Edition : 24.11.89
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 087 424

Injection pump
Pump designation : PE6P120A720RS7020
EP type number : 0 412 626 828
Governor
Governor design. : RQV200...1000PA539-8
Governor no. : 0 421 813 635

Customer-spec. information
Customer : SAAB-SCANIA

Engine : DS 11 34

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
: (4.95...5.15)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.90...13.00

Del.quantity cm³/ : 20.8...21.0

100 s: (20.5...21.3)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 225.0

Rack travel in mm : 4.6...5.0

Del.quantity cm³/ : 1.8...2.2

100 s: (-)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225
travel mm : 1.20...1.60

2nd speed rpm : 350
travel mm : 2.30...2.90

3rd speed rpm : 650
travel mm : 4.40...5.00

4th speed rpm : 1045
travel mm : 8.40...8.60

5th speed rpm : 1150
travel mm : 9.70...10.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1050

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 208.0...210.0

1000 : (205.0...213.0)

Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 58...66

Testing:
1st rack travel in: 11.90
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 6...14

Testing:
Speed rpm : 100
Minimum rack travel: 6.20
Speed rpm : 225
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 350...410

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.90...13.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.50...10.90
2nd pressure hPa : 520
Rack travel in m: 12.30...12.40
3rd pressure hPa : 320
Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1000
Del.quantity cm³/ : 198.0...206.0
1000 s: (196.0...208.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 151.0...155.0
1000 s: (149.0...157.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 275.0...325.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.60...4.80

Remarks:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Start-of-delivery setting with ROBO
diaphragm.

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 12,0 f 1
 Edition : 24.11.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 425
 Injection pump
 Pump designation : PES6P120A720LS7181
 EP type number : 0 412 726 824
 Governor
 Governor design. : RQ300/1050PA911-1
 Governor no. : 0 421 801 481

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 LA

1st version kW : 294.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 15.20...15.40

Del.quantity cm3/ : 27.4...27.6

100 s: (27.1...27.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 274.0...276.0

1000 : (271.0...279.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.90
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0
Speed rpm : 300
Rack travel in mm : 5.80...6.20
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.50
2nd speed rpm : 1050
Rack travel in m: 14.90...15.10
3rd speed rpm : 850
Rack travel in m: 15.60...15.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 15.20...15.40

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 10.90...11.10
2nd pressure hPa : 700
Rack travel in m: 14.00...14.20
3rd pressure hPa : 1300
Rack travel in m: 15.40...15.60
4th pressure hPa : 1450
Rack travel in m: 15.90...16.10
5th pressure hPa : -
Rack travel in m: 10.00...10.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600
Speed rpm : 1050

Del.quantity cm3/ : 269.0...272.0
1000 s: (266.0...275.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1600
Speed rpm : 700
Del.quantity cm3/ : 298.0...301.0
1000 s: (295.0...304.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 143.0...145.0
1000 s: (140.0...148.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.90
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 250.0...270.0
1000 s: (246.0...274.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a11
Edition : 28.09.89
Replaces : 2.5.89
Test oil : ISO-4113

Combination no. : 9 400 230 089

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025
Governor
Governor design. : RSV400...1100AOC2190
-3R
Governor no. : 9 420 234 125

Customer-spec. information
Customer : C.D.C.

Engine : 6 C 8.3

1st version kW : 129.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.60...10.70

Del.quantity cm3/ : 9.5...9.7

100 s: (9.3...9.9)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 400.0
Rack travel in mm : 5.8...6.0
Del.quantity cm3/ : 1.6...2.0
100 s: (1.3...2.2)
Spread cm3 : 0.6
100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3

Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del.quantity : 95.5...97.5
1000 : (93.5...99.5)
Spread cm3 : 4.00
1000 : (6.50)

RATED SPEED

1st version
Control lever
position degrees: 41...49

Testing:

1st rack travel in: 9.60
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 445...505

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.60
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3911953

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3.9 A13
Edition : 17.01.1990
replaces : -
Calibrating oil : ISO4113

Injection pump : VE 4/12F1050 R123-4
Type number : 0 460 424 010
Customer Part-No. : 3 917 654

Customer-specific information
Customer : CDC

Engine : 4 BT 390

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 016

Opening
pressure bar : 207...210

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.0
x Wall thickness : 2.0
x Length mm : 840

Start of delivery
Prestroke mm : 0.3
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm : 2.00
mm : $\pm 0.02(0.06)$

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900

Setting value mm: 2.3...2.7

Supply-pump pressure:

Speed 1/min: 900
Setting value bar: 4.5...5.1

Full-load del. w/out charge press.:

Speed 1/min : 900
Del.quantity cm³/
1000H.: 85.0...86.0
Dispersion cm³/: 4.0
1000H.: (4.5)

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm³/
1000H.: 18.5...24.5
Dispersion cm³/: 5.5
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1120
Del.quantity cm³/
1000H: 47.0...53.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
TD travel mm: 1.2...2.0
mm: (0.9...2.3)
2nd speed 1/min: 900
TD travel mm: 2.3...2.7
mm: (1.8...2.2)
3rd speed 1/min: 1050
TD travel mm: 3.0...3.8
mm: (2.7...4.1)

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump
pressure bar: 3.9...4.5
2nd speed 1/min: 900
Supply-pump
pressure bar: 4.5...5.1
3rd speed 1/min: 1050
Supply-pump
pressure bar: 5.2...5.8

Overflow quantity at overflow valve:

1st speed 1/min: 400

Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 1050
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1185
Del.quantity cm3/: 0.0...3.0
1000H.: -
2nd speed 1/min: 1140
Del.quantity cm3/: 15.0...55.0
1000H.: -
3rd speed 1/min: 1120
Del.quantity cm3/: 47.0...53.0
1000H.: (44.0...56.0)
4th speed 1/min: 1050
Del.quantity cm3/: 79.5...82.5
1000H.: (78.0...84.0)
5th speed 1/min: 900
Del.quantity cm3/: 85.0...86.0
1000H.: (82.5...88.5)
6th speed 1/min: 750
Del.quantity cm3/: 84.5...88.5
1000H.: (82.5...90.5)
7th speed 1/min: 400
Del.quantity cm3/: 82.5...90.5
1000H.: (80.5...92.5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1050
Del.quantity cm3/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del.quantity cm3/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del.quantity cm3/: 18.5..24.5
1000H.: (14.5..28.5)
2nd speed 1/min: 450
Del.quantity cm3/: 0.0...4.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
ind. 1000H: 100.0

2nd speed 1/min: 200
max. 1000H : 85.0

Shutoff electromagnet:

Cut-in
min. voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5.0...5.4
MS	mm	:	1.3...1.7
SVS max.	mm	:	4.0
XK	mm	:	20.2...22.2
XL	mm	:	13.2...16.5

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3.9 A12
Edition : 16.01.1990
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/12F1100 R123-5
Type number : 0 460 424 011
Customer Part-No. : 3 917 655

Customer-specific information
Customer : CDC

Engine : 4 BT 390

Power k: 60
Speed 1/mi: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 016

Opening
pressure bar : 207...210

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0.3
(from BDC): +0.02(0.04)

Start of delivery block
Piston stroke mm: -
mm: -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900
Setting value mm: 2.3...2.7

Supply-pump pressure:

Speed 1/min: 900
Setting value bar: 4.3...4.9

Full-load del. w/out charge press.:

Speed 1/min : 900
Del.quantity cm3/
1000H.: 70.5...71.5
Dispersion cm3/: 4.0
1000H.: (4.5)

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm3/
1000H.: 10.7...11.3
Dispersion cm3/: 5.5
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1120
Del.quantity cm3/
1000H: 52.0...58.0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 97.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
TD travel mm: 0.4...1.2
mm: (0.1...1.5)
2nd speed 1/min: 900
TD travel mm: 2.3...2.7
mm: (1.8...3.2)
3rd speed 1/min: 1100
TD travel mm: 3.3...4.1
mm: (3.0...4.4)

Supply-pump pressure characteristic:

1st speed 1/min: 400
Supply-pump
pressure bar: 2.1...2.7
2nd speed 1/min: 900

Supply-pump
pressure bar: 4.3...4.9
3rd speed 1/min: 1100
Supply-pump
pressure bar: 5.2...5.8

Overflow quantity at overflow valve:

1st speed 1/min: 400
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1100
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1230
Del.quantity cm³/: 0.0...3.0
1000H.: -
2nd speed 1/min: 1160
Del.quantity cm³/: 15.0...55.0
1000H.: -
3rd speed 1/min: 1120
Del.quantity cm³/: 52.0...58.0
1000H.: (49.0...61.0)
4th speed 1/min: 1100
Del.quantity cm³/: 64.5...67.5
1000H.: (63.0...69.0)
5th speed 1/min: 900
Del.quantity cm³/: 70.5...71.5
1000H.: (68.0...74.0)
6th speed 1/min: 750
Del.quantity cm³/: 70.5...74.5
1000H.: (68.5...76.5)
7th speed 1/min: 400
Del.quantity cm³/: 61.5...69.5
1000H.: (59.5...71.5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1100
Del.quantity cm³/: 0..3

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -

Idle delivery:

1st speed 1/min: 375
Del.quantity cm³/: 8.0...14.0
1000H.: (6.0...16.0)
2nd speed 1/min: 450
Del.quantity cm³/: 0.0...4.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Del.quantity cm³/: -
ind. 1000H: 100.0

2nd speed 1/min: 200
Del.quantity cm³/: -
max. 1000H : 85.0

Shutoff electromagnet:

Cut-in
min. voltage : 20
Rated voltage : 24

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5.1...5.4
MS	mm	: 1.4...1.6
SVS max.	mm	: 3.4
XK	mm	: 20.2...22.2
XL	mm	: 12.5...15.9

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3.9 B3
Edition : 17.01.1990
replaces : -
Calibrating oil : ISO4113

Injection pump : VE 4/12F1400 R182
Type number : 0 460 424 015
Customer Part-No. : 3 917 642

Customer-specific information
Customer : CDC

Engine : 4 BT-3.9

Power k: 78
Speed 1/mi: 2800

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 016

Opening
pressure bar : 207...210

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.0
x Wall thickness : 2.0
x Length mm : 840

Start of delivery
Prestroke mm : 0.3
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: 1.8
mm: $\pm 0.02(0.06)$

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100
Charge press. hPa: 750
Setting value mm: 1.4...1.8

Supply-pump pressure:

Speed 1/min: 1100
Charge press. hPa: 750
Setting value bar: 4.7...5.3

Full-load del. with charge press.:

Speed 1/min: 1100
Charge press. hPa: 750
Del.quantity cm3/
1000H.: 81.5...82.5
Dispersion cm3/ : 4.0
1000H : (4.5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm3/
1000H.: 64.0...65.0

Low-idle speed regulation:

Speed 1/min: 375
Charge press. hPa: -
Del.quantity cm3/
1000H.: 20.0...26.0
Dispersion cm3/ : 5.5
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1600
Charge press. hPa: 750
Del.quantity cm3/
1000H: 22.0...28.0

Start:

Speed 1/min: 100
Charge press. hPa: -
mind cm3/1000H.: 97.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
Charge press. hPa: 750
TD travel mm: 0.6...1.4
mm: (0.3...1.7)
2nd speed 1/min: 1100

Charge press. hPa: 750
TD travel mm: 1.4...1.8
mm: (0.9...2.5)
3rd speed 1/min: 1250
Charge press. hPa: 750
TD travel mm: 2.1...2.9
mm: (1.8...3.2)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 750
Supply-pump pressure bar: 2.1...2.7
2nd speed 1/min: 1100
Charge press. hPa: 750
Supply-pump pressure bar: 4.7...5.3
3rd speed 1/min: 1250
Charge press. hPa: 750
Supply-pump pressure bar: 5.2...5.8

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1400
Charge press. hPa: 750
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750
Charge-air pressure-setting point hPa: 300
LDA stroke mm: 7.5
Del.quantity cm³/: 77.5...78.5
1000H.: (74.0...82.0)
2nd speed 1/min: 1750
Charge press. hPa: 750
Del.quantity cm³/: 0.0...3.0
1000H.: -
3rd speed 1/min: 1600
Charge press. hPa: 750
Del.quantity cm³/: 22.0...28.0
1000H.: (19.0...31.0)
4th speed 1/min: 1475
Charge press. hPa: 750
Del.quantity cm³/: 54.5...62.5
1000H.: (52.5...64.5)
5th speed 1/min: 1400
Charge press. hPa: 750
Del.quantity cm³/: 72.0...75.0
1000H.: (70.5...76.5)
6th speed 1/min: 1100
Charge press. hPa: 750

Del.quantity cm³/: 81.5...82.5
1000H.: (79.0...85.0)
7th speed 1/min: 900
Charge press. hPa: 750
Del.quantity cm³/: 82.5...86.5
1000H.: (80.5...88.5)
8th speed 1/min: 500
Charge press. hPa: -
Del.quantity cm³/: 64.0...65.0
1000H.: (60.5...68.5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1400
Del.quantity cm³/: 0.3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del.quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del.quantity cm³/: 8.0...14.0
1000H.: 6.0...16.0
2nd speed 1/min: 450
Del.quantity cm³/: 0.0...4.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Charge press. hPa: -
ind. 1000H: 97.0

2nd speed 1/min: 200
Charge press. hPa: -
max. 1000H : 85.5

Shutoff electromagnet:

Cut-in
min. voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm : -
KF mm : 5.2...5.5
MS mm : 1.3...1.7
SVS max. mm : 4.6

Remarks:

* Correction at adjusting nut (46)



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3.9 D5
Edition : 17.01.1990
replaces : -
Calibrating oil : ISO4113

Injection pump : VE 4/12F1250 R230-1
Type number : 0 460 424 027
Customer Part-No. : 3 910 678

Customer-specific information
Customer : CDC

Engine : 4 BT 3.9 AUTO

Power k: 80
Speed 1/mi: 2500

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 52...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.0
x Wall thickness : 2.0
x Length mm : 840

Start of delivery
Prestroke mm : 0.3
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: -
mm: -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

F01

Speed 1/min: 1100
Charge press. hPa: 1000
Setting value mm: 1.8...2.2

Supply-pump pressure:

Speed 1/min: 1110
Charge press. hPa: 1000
Setting value bar: 4.7...5.3

Full-load del. with charge press.:

Speed 1/min: 900
Charge press. hPa: 1000
Del.quantity cm³/
1000H.: 69.5...70.5
Dispersion cm³ : 4.0
1000H : (4.5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm³/
1000H.: 36.5...37.5

Low-idle speed regulation:

Speed 1/min: 340
Charge press. hPa: -
Del.quantity cm³/
1000H.: 8.0...14.0
Dispersion cm³ : 5.5
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1330
Charge press. hPa: 1000
Del.quantity cm³/
1000H: 49.0...55.0

Start:

Speed 1/min: 100
Charge press. hPa: -
mind cm³/1000H.: 40.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
Charge press. hPa: 1000
TD travel mm: 0.3...1.1
mm: (0.0...1.4)
2nd speed 1/min: 1100
Charge press. hPa: 1000

TD travel mm: 1.8...2.2
mm: (1.3...2.7)
3rd speed 1/min: 1200
Charge press. hPa: 1000
TD travel mm: 2.4...3.2
mm: (2.1...3.5)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 2.1...2.7
2nd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump pressure bar: 4.7...5.3
3rd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump pressure bar: 5.4...6.0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1250
Charge press. hPa: 1000
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 400
LDA stroke mm: 6.0
Del.quantity cm³/: 67.0...68.0
1000H.: (63.5...71.5)
2nd speed 1/min: 1500
Charge press. hPa: 1000
Del.quantity cm³/: 0.0...3.0
1000H.: -
3rd speed 1/min: 1430
Charge press. hPa: 1000
Del.quantity cm³/: 15.0...55.0
1000H.: -
4th speed 1/min: 1330
Charge press. hPa: 1000
Del.quantity cm³/: 49.0...55.0
1000H.: (46.0...58.0)
5th speed 1/min: 1250
Charge press. hPa: 1000
Del.quantity cm³/: 65.5...68.5
1000H.: (64.0...70.0)
6th speed 1/min: 1100
Charge press. hPa: 1000

Del.quantity cm³/: 66.5...69.5
1000H.: (64.5...71.5)
7th speed 1/min: 900
Charge press. hPa: 1000
Del.quantity cm³/: 69.5...70.5
1000H.: (67.0...73.0)
8th speed 1/min: 500
Charge press. hPa: 1000
Del.quantity cm³/: 73.5...81.5
1000H.: -
9th speed 1/min: 500
Charge press. hPa: -
Del.quantity cm³/: 36.5...37.5
1000H.: (33.0...41.0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
Del.quantity cm³/: 0...3
1000H.: -

Electr. shutoff:

Speed 1/min: 340
ELAB volt: -
Del.quantity cm³/: 0.0...3.3
max. 1000H.: -

Idle delivery:

1st speed 1/min: 340
Del.quantity cm³/: 8.0...14.0
1000H.: (5.0...17.0)
2nd speed 1/min: 500
Del.quantity cm³/: 0.0...4.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Charge press. hPa: -
ind. 1000H: 40.0
2nd speed 1/min: 380
Charge press. hPa: -
max. 1000H : 40.0

Shutoff electromagnet:

Cut-in
min. voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm : -
KF mm : 5.1...5.4

MS	mm	: 1.1..1.35
SVS max.	mm	: 2.2
XK	mm	: 20.2...22.2
XL	mm	: 11.9...15.3

Remarks:

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3.9 N26
Edition : 18.01.1990
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/12F1150 R231-1
Type number : 0 460 424 029
Customer Part-No. : 3 909 591

Customer-specific information
Customer : CDC

Engine : 4 BT 3.9

Power k: 82
Speed 1/mi: 2300

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.0
x Wall thickness : 2.0
x Length mm : 840

Start of delivery
Prestroke mm : 0.3
(from BDC): +0.02

Start of delivery block
Piston stroke mm: 1.55
mm: +0.02(0.06)

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 850
Charge press. hPa: 1000
Setting value mm: 4.0...4.4

Supply-pump pressure:

Speed 1/min: 850
Charge press. hPa: 1000
Setting value bar: 5.6...6.2

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1000
Del.quantity cm3/
1000H.: 85.5...86.5
Dispersion cm3/ : 4.0
1000H : (4.5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm3/
1000H.: 63.5...64.5

Low-idle speed regulation:

Speed 1/min: 375
Charge press. hPa: -
Del.quantity cm3/
1000H.: 8.0...14.0
Dispersion cm3/: 5.5
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1220
Charge press. hPa: 1000
Del.quantity cm3/
1000H: 62.5...68.5

Start:

Speed 1/min: 100
Charge press. hPa: -
mind cm3/1000H.: 60.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500*
Charge press. hPa: 1000
TD travel mm: 1.8...2.6*
mm: (1.5...2.9)
2nd speed 1/min: 850

Charge press. hPa: 1000
 TD travel mm: 4.0...4.4
 mm: (3.5...4.9)
 3rd speed 1/min: 1150
 Charge press. hPa: 1000
 TD travel mm: 5.2...6.0
 mm: (4.9...6.3)

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Charge press. hPa: 1000
 Supply-pump pressure bar: 4.0...4.6
 2nd speed 1/min: 850
 Charge press. hPa: 1000
 Supply-pump pressure bar: 5.6...6.2
 3rd speed 1/min: 1150
 Charge press. hPa: 1000
 Supply-pump pressure bar: 6.9...7.5

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Overflow : 41...83
 quantity cm³/10s: (26...98)
 2nd speed 1/min: 1150
 Charge press. hPa: 1000
 Overflow : 55...138
 quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
 Charge-air pressure-setting point hPa: 350
 Del.quantity cm³/: 79.5...80.5
 1000H.: (76.0...84.0)
 2nd speed 1/min: 1320
 Charge press. hPa: 1000
 Del.quantity cm³/: 0.0...3.0
 1000H.: -
 3rd speed 1/min: 1260
 Charge press. hPa: 1000
 Del.quantity cm³/: 15.0...55.0
 1000H.: -
 4th speed 1/min: 1220
 Charge press. hPa: 1000
 Del.quantity cm³/: 62.5...68.5
 1000H.: (59.5...71.5)
 5th speed 1/min: 1150
 Charge press. hPa: 1000
 Del.quantity cm³/: 76.0...79.0
 1000H.: (74.5...80.5)
 6th speed 1/min: 1000
 Charge press. hPa: 1000

Del.quantity cm³/: 79.5...82.5
 1000H.: (77.5...84.5)
 7th speed 1/min: 850
 Charge press. hPa: 1000
 Del.quantity cm³/: 85.5...86.5
 1000H.: (83.0...89.0)
 8th speed 1/min: 500
 Charge press. hPa: 1000
 Del.quantity cm³/: 90.0...98.0
 1000H.: -
 9th speed 1/min: 500
 Charge press. hPa: -
 Del.quantity cm³/: 63.5...64.5
 1000H.: (60.0...68.0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1150
 Del.quantity cm³/: 0..3
 1000H.: -

Electr. shutoff:

Speed 1/min: 375
 ELAB volt: -
 Del.quantity cm³/: 0.0...3.0
 max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
 Del.quantity cm³/: 8.0...14.0
 1000H.: (6.0...16.0)
 2nd speed 1/min: 450
 Del.quantity cm³/: 0.0...4.0
 1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
 Charge press. hPa: -
 ind. 1000H.: 60.0
 2nd speed 1/min: 230
 Charge press. hPa: -
 max. 1000H.: 60.0

Shutoff electromagnet:

Cut-in
 min. voltage : 20.0
 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
 K mm : -
 KF mm : 5.0...5.4

MS mm : 1,0...1,4

Remarks:
* Correction at adjusting nut (46)



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3.9 P
Edition : 17.01.90
replaces : 20.10.89
Calibrating oil : ISO 4113

Injection pump : VE 4/12F1250 R359
Type number : 0 460 424 054

Customer-specific information
Customer : CDC

Engine : 4 BTA

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC): -

Start of delivery block
Piston stroke mm: 1.25
mm: $\pm 0.02(0.06)$
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100
Charge press. hPa: 1000

F07

Setting value mm: 2.0...2.4

Supply-pump pressure:

Speed 1/min: 1100
Charge press. hPa: 1000
Setting value bar: 5.3...5.9

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1000
Del.quantity cm³/
1000H.: 83.0...84.0
Dispersion cm³/
1000H.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm³/
1000H.: 53.0...54.0

Low-idle speed regulation:

Speed 1/min: 375
Charge press. hPa: -
Del.quantity cm³/
1000H.: 10.0...12.0
Dispersion cm³/
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1330
Charge press. hPa: 1000
Del.quantity cm³/
1000H.: 68.0...74.0

Start:

Speed 1/min: 100
Charge press. hPa: -
Del.quantity : -
mind cm³/1000H.: 80.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 400
Charge press. hPa: -
TD travel mm: 2.9...3.9
mm: -

KSB solenoid-operated
valve volt: -
2nd speed 1/min: 1000
Charge press. hPa: 1000

TD travel mm: 1.9...1.7
mm: (0.6...2.0)

KSB solenoid-operated
valve volt: 12
3rd speed 1/min: 1100
Charge press. hPa: 1000
TD travel mm: 2.0...2.4
mm: (1.5...2.9)

KSB solenoid-operated
valve volt: 12
4th speed 1/min: 1250
Charge press. hPa: 1000
TD travel mm: 2.8...3.6
mm: (2.5...3.9)

KSB solenoid-operated
valve volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure bar: 2.6...3.2
KSB solenoid-operated
valve volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.9...5.5
KSB solenoid-operated
valve volt: 12
3rd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.3...5.9
4th speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.0...6.6

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1250
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700*
Charge-air pressure-setting
point hPa: 535

KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 71.5...72.5
1000H.: (68.0...76.0)

2nd speed 1/min: 1450
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 0.0...3.0
1000H.: -

3rd speed 1/min: 1430
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 15.0...45.0
1000H.: -

4th speed 1/min: 1330
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 68.0...74.0
1000H.: (65.0...77.0)

5th speed 1/min: 1250
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 76.5...79.5
1000H.: (75.0...81.0)

6th speed 1/min: 1100
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 77.5...80.5
1000H.: (75.5...82.5)

7th speed 1/min: 850
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 83.0...84.0
1000H.: (80.5...86.5)

8th speed 1/min: 500
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 53.0...54.0
1000H.: (49.5...57.5)

9th speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 94.0...104.0
1000H.: -

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
Del.quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del.quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 10.0..12.0
1000H.: (6.0...16.0)
2nd speed 1/min: 450
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 0.0...2.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: -
ind. 1000H: 80.0

2nd speed 1/min: 250
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: -
max. 1000H : 40.0

Shutoff electromagnet:

Cut-in
min. voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm : 3.6...3.8
KF mm : K-OT
MS mm : 0.8...1.2
SVS max. mm : 2.1

Remarks:
: C.D.C. # 391 7535

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3.9 N30
Edition : 18.01.1990
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/12F1050 R388
Type number : 0 460 424 064

Customer-specific information
Customer : CDC

Engine : 4 BT 3.9

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 016

Opening
pressure bar : 207...210

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.0
x Wall thickness : 2.0
x Length mm : 840

Start of delivery
Prestroke mm : 0.3
(from BDC): +0.02(0.04)

Start of delivery block
Piston stroke mm : 2.0
mm : +0.02(0.06)

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900
Setting value mm: 2.3...2.7

Supply-pump pressure:

Speed 1/min: 900
Setting value bar: 4.5...5.1

Full-load del. w/out charge press.:

Speed 1/min : 900
Del.quantity cm3/
1000H.: 64.5...65.5
Dispersion cm3/: 4.0
1000H.: (4.5)

Low-idle speed regulation:

Speed 1/min: 420
Del.quantity cm3/
1000H.: 18.5...24.5
Dispersion cm3/: 5.5
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1110
Del.quantity cm3/
1000H.: 32.0...38.0

Start:

Speed 1/min: 100
mind cm3/1000H.: 100.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
TD travel mm: 1.1...1.9
mm: (0.8...2.2)
2nd speed 1/min: 900
TD travel mm: 2.3...2.7
mm: (1.8...3.2)
3rd speed 1/min: 1050
TD travel mm: 3.2...4.0
mm: (2.9...4.3)

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump
pressure bar: 3.8...4.4
bar: (3.6...4.6)
2nd speed 1/min: 900
Supply-pump
pressure bar: 4.5...5.1
bar: (4.3...5.3)
3rd speed 1/min: 1050

Supply-pump
pressure bar: 4.9...5.5
bar: (4.7...5.7)

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1050
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1160
Del.quantity cm³/: 0.0...3.0
1000H.: -
2nd speed 1/min: 1110
Del.quantity cm³/: 32.0...38.0
1000H.: (29.0...41.0)
3rd speed 1/min: 1050
Del.quantity cm³/: 59.5...62.5
1000H.: (58.0...64.0)
4th speed 1/min: 900
Del.quantity cm³/: 64.5...65.5
1000H.: (62.0...68.0)
5th speed 1/min: 750
Del.quantity cm³/: 64.0...68.0
1000H.: (62.0...70.0)
6th speed 1/min: 500
Del.quantity cm³/: 58.0...66.0
1000H.: (56.0...68.0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1050
Del.quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del.quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 420
Del.quantity cm³/: 18.5..24.5
1000H.: (16.5..26.5)
2nd speed 1/min: 500
Del.quantity cm³/: 0.0...4.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
ind. 1000H: 100.0

2nd speed 1/min: 200
max. 1000H : 105.0

Shutoff electromagnet:

Cut-in
min. voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5.0...5.4
MS	mm	:	1.3...1.7
SVS max.	mm	:	4.2

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3.9 N31
Edition : 18.01.1990
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/12F1050 R389
Type number : 0 460 424 065

Customer-specific information
Customer : CDC

Engine : 4 BT-390

Power k: 81
Speed 1/mi: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.0
x Wall thickness : 2.0
x Length mm : 840

Start of delivery
Prestroke mm : 0.3
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: 1.55
mm: $\pm 0.02(0.06)$

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750
Charge press. hPa: 1000
Setting value mm: 3.4...3.8
KSB solenoid-operated
valve volt: 12

Supply-pump pressure:

Speed 1/min: 750
Charge press. hPa: 1000
Setting value bar: 5.0...5.6
KSB solenoid-operated
valve volt: 12

Full-load del. with charge press.:

Speed 1/min: 750
Charge press. hPa: 1000
Del.quantity cm³/
1000H.: 89.5...90.5
KSB solenoid-operated
valve volt : 12
Dispersion cm³ / : 4.0
1000H : (4.5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm³/
1000H.: 63.5...64.5
KSB solenoid-operated
valve volt: 12

Low-idle speed regulation:

Speed 1/min: 375
Charge press. hPa: -
Del.quantity cm³/
1000H.: 8.0...14.0
KSB solenoid-operated
valve volt: 12
Dispersion cm³ / : 5.5
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1100
Charge press. hPa: 1000
Del.quantity cm³/
1000H.: 59.0...65.0
KSB solenoid-operated
valve volt: 12

Start:

Speed 1/min: 100
Charge press. hPa: -
mind cm³/1000H.: 60.0

KSB solenoid-operated
valve volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
TD travel mm: 1.7...2.5
mm: (1.4...2.8)

KSB solenoid-operated
valve volt: 12
2nd speed 1/min: 750
Charge press. hPa: 1000
TD travel mm: 3.4...3.8
mm: (2.9...4.3)

KSB solenoid-operated
valve volt: 12
3rd speed 1/min: 1050
Charge press. hPa: 1000
TD travel mm: 4.7...5.5
mm: (4.4...5.8)

KSB solenoid-operated
valve volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.9...4.5

2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.0...5.6

KSB solenoid-operated
valve volt: 12
3rd speed 1/min: 1050
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.3...6.9

KSB solenoid-operated
valve volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12
Overflow : 41...83
quantity cm³/10s: (26...98)

2nd speed 1/min: 1050
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12

Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point hPa: 350
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 79.5...80.5
1000H.: (76.0...84.0)

2nd speed 1/min: 1180
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 0.0...3.0
1000H.: -

3rd speed 1/min: 1120
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 15.0...45.0
1000H.: -

4th speed 1/min: 1100
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 59.0...65.0
1000H.: (56.0...68.0)

5th speed 1/min: 1050
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 76.5...79.5
1000H.: (75.0...81.0)

6th speed 1/min: 900
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 79.5...87.5
1000H.: -

7th speed 1/min: 750
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 89.5...90.5
1000H.: (87.0...93.0)

8th speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 63.5...64.5
1000H.: (60.0...68.0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1050

Del.quantity cm3/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del.quantity cm3/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
KSB solenoid-operated
valve volt: 12
Del.quantity cm3/: 8.0...14.0
1000H.: (6.0...16.0)
2nd speed 1/min: 450
KSB solenoid-operated
valve volt: 12
Del.quantity cm3/: 0.0...4.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12
ind. 1000H: 60.0

2nd speed 1/min: 230
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12
max. 1000H : 60.0

Shutoff electromagnet:

Cut-in
min. voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm : -
KF mm : 5.0...5.4
MS mm : 1.0...1.4
SVS max. mm : 2.2

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3.9 N32
Edition : 17.01.1990
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/12F1200 R390
Type number : 0 460 424 067

Customer-specific information
Customer : CDC

Engine : 4 BTA 3.9

Power k: 92
Speed 1/mi: 2800

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.0
x Wall thickness : 2.0
x Length mm : 840

Start of delivery
Prestroke mm : 0.3
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: 1.95
mm: $\pm 0.02(0.06)$

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100
Charge press. hPa: 1000
Setting value mm: 2.2...2.6

Supply-pump pressure:

Speed 1/min: 1100
Charge press. hPa: 1000
Setting value bar: 5.7...6.3

Full-load del. with charge press.:

Speed 1/min: 750
Charge press. hPa: 1000
Del.quantity cm³/
1000H.: 82.0...83.0
Dispersion cm³/ : 4.0
1000H.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm³/
1000H.: 55.5...56.5

Low-idle speed regulation:

Speed 1/min: 400
Charge press. hPa: -
Del.quantity cm³/
1000H.: 4.0...6.0
Dispersion cm³/: 5.5
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1500
Charge press. hPa: 1000
Del.quantity cm³/
1000H.: 48.5...54.5

Start:

Speed 1/min: 100
Charge press. hPa: -
mind cm³/1000H.: 70.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 850
Charge press. hPa: 1000
TD travel mm: 0.7...1.5
mm: (0.4...1.8)
2nd speed 1/min: 1100
Charge press. hPa: 1000

TD travel mm: 2.2...2.6
mm: (1.7...3.1)
3rd speed 1/min: 1250
Charge press. hPa: 1000
TD travel mm: 2.8...3.6
mm: (2.5...3.9)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 3.2...3.8
2nd speed 1/min: 850
Charge press. hPa: 1000
Supply-pump pressure bar: 4.7...5.3
3rd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump pressure bar: 5.7...6.3
4th speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump pressure bar: 6.3...6.9

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1400
Charge press. hPa: 1000
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 330
Del.quantity cm³/: 64.5...65.5
1000H.: (61.0...69.0)
2nd speed 1/min: 1640
Charge press. hPa: 1000
Del.quantity cm³/: 0.0...3.0
1000H.: -
3rd speed 1/min: 1560
Charge press. hPa: 1000
Del.quantity cm³/: 15.0...45.0
1000H.: -
4th speed 1/min: 1500
Charge press. hPa: 1000
Del.quantity cm³/: 48.5...54.5
1000H.: (45.5...57.5)
5th speed 1/min: 1400
Charge press. hPa: 1000
Del.quantity cm³/: 71.0...74.0
1000H.: (69.5...75.5)

6th speed 1/min: 1100
Charge press. hPa: 1000
Del.quantity cm³/: 77.0...80.0
1000H.: (75.0...82.0)
7th speed 1/min: 750
Charge press. hPa: 1000
Del.quantity cm³/: 82.0...83.0
1000H.: (79.5...85.5)
8th speed 1/min: 500
Charge press. hPa: 1000
Del.quantity cm³/: 94.0...104.0
1000H.: -
9th speed 1/min: 500
Charge press. hPa: -
Del.quantity cm³/: 55.5...56.5
1000H.: (52.0...60.0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1400
Del.quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 400
ELAB volt: -
Del.quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 400
Del.quantity cm³/: 4.0...6.0
1000H.: (0.0...10.0)
2nd speed 1/min: 450
Del.quantity cm³/: 0.0...4.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 230
Charge press. hPa: -
ind. 1000H: 80.0

2nd speed 1/min: 400
Charge press. hPa: -
max. 1000H : 80.0

Shutoff electromagnet:

Cut-in
min. voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm : K-OT
MS mm : 1.0...1.4
SVS max. mm : 1.2

Remarks:

Overflow restriction 0.75 mm - Part No.
..343,..344

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5.9 U40
Edition : 17.01.1990
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1325 R198
Type number : 0 460 426 063
Customer Part-No. : 3 908 203

Customer-specific information
Customer : CDC

Engine : 6 BT 5.9

Power k: 97
Speed 1/mi: 2650

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 688 750 017

Outside diameter : 6.0
x Wall thickness : 2.0
x Length mm : 840

Start of delivery
Prestroke mm : 0.3
(from BDC): $\pm 0.02(0.06)$

Start of delivery block
Piston stroke mm : 1.5
mm : $\pm 0.02(0.06)$

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 850
Setting value mm: 3.9...4.3

Supply-pump pressure:

Speed 1/min: 850
Setting value bar: 3.9...4.5

Full-load del. w/out charge press.:

Speed 1/min : 1100
Del.quantity cm³/
1000H.: 56.0...57.0
Dispersion cm³/: 4.0
1000H.: (4.5)

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm³/
1000H.: 8.0...14.0
Dispersion cm³/: 5.5
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1400
Del.quantity cm³/
1000H.: 36.0...42.0

Start:

Speed 1/min: 100
mind cm³/1000H.: 60.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
TD travel mm: 1.3...2.1
mm: (1.0...2.4)
2nd speed 1/min: 850
TD travel mm: 3.9...4.3
mm: (3.4...4.8)
3rd speed 1/min: 1100
TD travel mm: 5.9...6.7
mm: (5.6...7.0)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2.5...3.1
2nd speed 1/min: 850

Supply-pump
pressure bar: 3.9...4.5
3rd speed 1/min: 1100
Supply-pump
pressure bar: 4.9...5.5

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1325
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1520
Del.quantity cm³/: 0.0...3.0
1000H.: -
2nd speed 1/min: 1440
Del.quantity cm³/: 15.0...45.0
1000H.: -
3rd speed 1/min: 1400
Del.quantity cm³/: 36.0...42.0
1000H.: (33.0...45.0)
4th speed 1/min: 1325
Del.quantity cm³/: 53.5...55.5
1000H.: (51.0...57.0)
5th speed 1/min: 1100
Del.quantity cm³/: 56.0...57.0
1000H.: (53.5...59.5)
6th speed 1/min: 850
Del.quantity cm³/: 53.5...57.5
1000H.: (51.5...59.5)
7th speed 1/min: 500
Del.quantity cm³/: 38.5...46.5
1000H.: (36.5...48.5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1325
Del.quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del.quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del.quantity cm³/: 8.0...14.0
1000H.: (6.0...16.0)
2nd speed 1/min: 450

Del.quantity cm³/: 0.0...4.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
ind. 1000H.: 65.0

2nd speed 1/min: 250
max. 1000H.: 65.0

Shutoff electromagnet:

Cut-in
min. voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5.0...5.4
MS	mm	: 1.3...1.7
SVS max.	mm	: 1.2
XK	mm	: 18.8...20.8
XL	mm	: 9.6...13.0

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5.9 T10
Edition : 17.01.1990
replaces : -
Calibrating oil : IS04113

Injection pump : VE 6/12F1400 R232
Type number : 0 460 426 077
Customer Part-No. : 3 908 578

Customer-specific information
Customer : CDC

Engine : 6 BT-5.9 AUTO

Power k: 117
Speed 1/mi: 2800

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 688 901 027

Outside diameter : 6.0
x Wall thickness : 2.0
x Length mm : 840

Start of delivery
Prestroke mm : 0.3
(from BDC): +0.02(0.04)

Start of delivery block
Piston stroke mm: -
mm: -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

F20

Speed 1/min: 900
Charge press. hPa: 1000
Setting value mm: 4.2...4.6

Supply-pump pressure:

Speed 1/min: 900
Charge press. hPa: 1000
Setting value bar: 4.1...4.7

Full-load del. with charge press.:

Speed 1/min: 900
Charge press. hPa: 1000
Del.quantity cm3/
1000H.: 67.0...68.0
Dispersion cm3/ : 4.0
1000H : (4.5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm3/
1000H.: 30.5...31.5

Low-idle speed regulation:

Speed 1/min: 360
Charge press. hPa: -
Del.quantity cm3/
1000H.: 8.0...14.0
Dispersion cm3/ : 5.5
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1530
Charge press. hPa: 1000
Del.quantity cm3/
1000H.: 49.0...55.0

Start:

Speed 1/min: 100
Charge press. hPa: -
mind cm3/1000H.: 45.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500*
Charge press. hPa: 1000
TD travel mm: 0.4...1.2*
mm: (0.1...1.5)
2nd speed 1/min: 900
Charge press. hPa: 1000

TD travel mm: 4.2...4.6
mm: (3.7...5.1)
3rd speed 1/min: 1110
Charge press. hPa: 1000
TD travel mm: 5.5...6.3
mm: (5.2...6.6)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 2.4...3.0
2nd speed 1/min: 900
Charge press. hPa: 1000
Supply-pump pressure bar: 4.1...4.7
3rd speed 1/min: 1400
Charge press. hPa: 1000
Supply-pump pressure bar: 6.1...6.7

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1400
Charge press. hPa: 1000
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 500
LDA stroke mm: 6.7
Del.quantity cm³/: 59.0...60.0
1000H.: (55.5...63.5)
2nd speed 1/min: 1700
Charge press. hPa: 1000
Del.quantity cm³/: 0.0...3.0
1000H.: -
3rd speed 1/min: 1620
Charge press. hPa: 1000
Del.quantity cm³/: 15.0...55.0
1000H.: (0.0...40.0)
4th speed 1/min: 1530
Charge press. hPa: 1000
Del.quantity cm³/: 49.0...55.0
1000H.: -
5th speed 1/min: 1400
Charge press. hPa: 1000
Del.quantity cm³/: 61.5...64.5
1000H.: (60.0...66.0)
6th speed 1/min: 1100
Charge press. hPa: 1000

Del.quantity cm³/: 64.5...67.5
1000H.: (62.5...69.5)
7th speed 1/min: 900
Charge press. hPa: 1000
Del.quantity cm³/: 67.0...68.0
1000H.: (64.5...70.5)
8th speed 1/min: 500
Charge press. hPa: 1000
Del.quantity cm³/: 65.5...73.5
1000H.: -
9th speed 1/min: 500
Charge press. hPa: -
Del.quantity cm³/: 30.5...31.5
1000H.: (27.0...35.0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1400
Del.quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 360
Del.quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 360
Del.quantity cm³/: 8.0...14.0
1000H.: (6.0...16.0)
2nd speed 1/min: 450
Del.quantity cm³/: 0.0...0.4
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 300
Charge press. hPa: -
ind. 1000H: 5.0
2nd speed 1/min: 480
Charge press. hPa: -
max. 1000H : 95.0

Shutoff electromagnet:

Cut-in
min. voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm : -
KF mm : 5.0...5.4
MS mm : 1.1...1.5

XK mm : 20.2...22.2
XL mm : 10.2...13.6

Remarks:

* Correction at adjusting nut (46)



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 W21
Edition : 16.01.90
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R278
Type number : 0 460 426 103
Customer Part-No. : 3 910 439

Customer-specific information
Customer : CDC

Engine : 6 BT-5.9A

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC): -

Start of delivery block
Piston stroke mm: 1,4
mm: +0,02(0,04)

Outlet : 0

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100

F23

Charge press. hPa: 1200
Setting value mm: 1,3...1,7
KSB solenoid-operated
valve volt: 24,0

Supply-pump pressure:

Speed 1/min: 1100
Charge press. hPa: 1200
Setting value bar: 6,8...7,4
KSB solenoid-operated
valve volt: 24,0

Full-load del. with charge press.:

Speed 1/min: 1100
Charge press. hPa: 1200
Del.quantity cm3/
1000H.: 73,0...74,0
KSB solenoid-operated
valve volt: 24,0
Dispersion cm3/ : 4,0
1000H.: (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm3/
1000H.: 51,0...52,0
KSB solenoid-operated
valve volt: 24,0
Dispersion cm3/ : 9,0
1000H.: -

Low-idle speed regulation:

Speed 1/min: 350
Del.quantity cm3/
1000H.: 5,5...9,5
KSB solenoid-operated
valve volt: 24,0
Dispersion cm3/ : 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1340
Charge press. hPa: 1200
Del.quantity cm3/
1000H.: 52,5...58,5
KSB solenoid-operated
valve volt: 24,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 60,0
KSB solenoid-operated
valve volt: 24,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450*
Charge press. hPa: -
TD travel mm: 3,0...4,0 *
mm: -
KSB solenoid-operated
valve volt: -
2nd speed 1/min: 1000
Charge press. hPa: 1200
TD travel mm: 0,5...1,3
mm: (0,2...1,6)
KSB solenoid-operated
valve volt: 24,0
3rd speed 1/min: 1100
Charge press. hPa: 1200
TD travel mm: 1,3...1,7
mm: (0,8...2,2)
KSB solenoid-operated
valve volt: 24,0
4th speed 1/min: 1250
Charge press. hPa: 1200
TD travel mm: 2,2...3,0
mm: (1,9...3,3)
KSB solenoid-operated
valve volt: 24,0

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1200
Supply-pump
pressure bar: 4,1...4,7
KSB solenoid-operated
valve volt: 24,0
2nd speed 1/min: 1100
Charge press. hPa: 1200
Supply-pump
pressure bar: 6,8...7,4
KSB solenoid-operated
valve volt: 24,0
3rd speed 1/min: 1250
Charge press. hPa: 1200
Supply-pump
pressure bar: 7,5...8,1
KSB solenoid-operated
valve volt: 24,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 24,0

Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point hPa: 700
LDA stroke mm: 6,2
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 68,0...69,0
1000H.: (64,5...72,5)
2nd speed 1/min: 1550
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 0,0...3,0
1000H.: -
3rd speed 1/min: 1450
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 0,0...15,0
1000H.: -
4th speed 1/min: 1410
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 15,0...55,0
1000H.: -
5th speed 1/min: 1340
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 52,5...58,5
1000H.: (49,5...61,5)
6th speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 69,0...72,0
1000H.: (67,5...73,5)
7th speed 1/min: 1100
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 73,0...74,0
1000H.: (70,5...76,5)
8th speed 1/min: 750
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0

Del.quantity cm³/: 72,0...77,0
1000H: (70,0...79,0)
9th speed 1/min: 500
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 79,0...91,0
1000H: -
10th speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 51,0...52,0
1000H: (47,5...55,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
Del.quantity cm³/: 0...3
1000H.: -

Electr. shutoff:

Speed 1/min: 350
ELAB volt: -
Del.quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 350
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 5,5...9,5
1000H.: (2,5...12,5)
2nd speed 1/min: 300
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 8,5...16,5
1000H.: -
3rd speed 1/min: 450
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: -
ind. 1000H: 60,0

2nd speed 1/min: 250
KSB solenoid-operated
valve volt: 24,0

Del.quantity cm³/: -
max. 1000H: 50,0

Shutoff electromagnet:

Cut-in
min. voltage : 20,0
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K mm : 3,7
KF mm : K-OT
MS mm : 0,8...1,2
SVS max. mm : 1,4
XK mm : 18.8...20.8
XL mm : 12.5...15.9
* Correction at adjusting nut (46)
emarks:

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 W18
Edition : 16.01.90
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE 6/12F1250 R278
Type number : 0 460 426 103
Customer Part-No. : 3 910 769

Customer-specific information
Customer : CDC

Engine : 6 BT-5.9A

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC): -

Start of delivery block
Piston stroke mm : 1,4
mm : +0,02(0,04)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100

Charge press. hPa: 1200
Setting value mm: 1,3...1,7
KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1100
Charge press. hPa: 1200
Setting value bar: 6,8...7,4
KSB solenoid-operated
valve volt: 12,0

Full-load del. with charge press.:

Speed 1/min: 1100
Charge press. hPa: 1200
Del.quantity cm3/
1000H.: 73,0...74,0
KSB solenoid-operated
valve volt: 12,0
Dispersion cm3/ : 4,0
1000H : (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm3/
1000H.: 51,0...52,0
KSB solenoid-operated
valve volt: 12,0
Dispersion cm3/ : 9,0
1000H.: -

Low-idle speed regulation:

Speed 1/min: 350
Del.quantity cm3/
1000H.: 5,5...9,5
KSB solenoid-operated
valve volt: 12,0
Dispersion cm3/ : 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1340
Charge press. hPa: 1200
Del.quantity cm3/
1000H: 52,5...58,5
KSB solenoid-operated
valve volt: 12,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 60,0
KSB solenoid-operated
valve volt: 12,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450*
Charge press. hPa: -
TD travel mm: 3,0...4,0 *

KSB solenoid-operated
valve volt: -
2nd speed 1/min: 1000
Charge press. hPa: 1200
TD travel mm: 0,5...1,3
mm: (0,2...1,6)

KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 1100
Charge press. hPa: 1200
TD travel mm: 1,3...1,7
mm: (0,8...2,2)

KSB solenoid-operated
valve volt: 12,0
4th speed 1/min: 1250
Charge press. hPa: 1200
TD travel mm: 2,2...3,0
mm: (1,9...3,3)

KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1200
Supply-pump
pressure bar: 4,1...4,7

KSB solenoid-operated
valve volt: 12,0

2nd speed 1/min: 1100
Charge press. hPa: 1200

Supply-pump
pressure bar: 6,8...7,4

KSB solenoid-operated
valve volt: 12,0

3rd speed 1/min: 1250
Charge press. hPa: 1200

Supply-pump
pressure bar: 7,5...8,1

KSB solenoid-operated
valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12,0

Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point hPa: 700
LDA stroke mm: 6,2
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 68,0...69,0
1000H.: (64,5...72,5)

2nd speed 1/min: 1550
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 0,0...3,0
1000H.: -

3rd speed 1/min: 1450
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 0,0...15,0
1000H.: -

4th speed 1/min: 1410
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 15,0...55,0
1000H.: -

5th speed 1/min: 1340
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 52,5...58,5
1000H.: (49,5...61,5)

6th speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 69,0...72,0
1000H.: (67,5...73,5)

7th speed 1/min: 1100
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 73,0...74,0
1000H.: (70,5...76,5)

8th speed 1/min: 750
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0

Del.quantity cm³/: 72,0...77,0
1000H: (70,0...79,0)
9th speed 1/min: 500
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 79,0...91,0
1000H: -
10th speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 51,0...52,0
1000H: (47,5...55,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
Del.quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 350
ELAB volt: -
Del.quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 350
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 5,5...9,5
1000H.: (2,5...12,5)
2nd speed 1/min: 300
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 8,5...16,5
1000H.: -
3rd speed 1/min: 450
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: -
ind. 1000H: 60,0

2nd speed 1/min: 250
KSB solenoid-operated
valve volt: 12,0

Del.quantity cm³/: -
max. 1000H: 50,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,7
KF	mm	: K-OT
MS	mm	: 0,8...1,2
SVS max.	mm	: 1,4
XK	mm	: 18.8...20.8
XL	mm	: 12.5...15.9

* Correction at adjusting nut (46)
emarks:

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 W19
Edition : 16.01.90
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R278
Type number : 0 460 426 103
Customer Part-No. : 3 914 888

Customer-specific information
Customer : CDC

Engine : 6 BT-5.9A

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC): -

Start of delivery block
Piston stroke mm : 1,4
mm : $\pm 0,02(0,04)$

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100

G01

Charge press. hPa: 1200
Setting value mm: 1,3...1,7
KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1100
Charge press. hPa: 1200
Setting value bar: 6,8...7,4
KSB solenoid-operated
valve volt: 12,0

Full-load del. with charge press.:

Speed 1/min: 1100
Charge press. hPa: 1200
Del.quantity cm³/
1000H.: 73,0...74,0
KSB solenoid-operated
valve volt: 12,0
Dispersion cm³/ : 4,0
1000H.: (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm³/
1000H.: 51,0...52,0
KSB solenoid-operated
valve volt: 12,0
Dispersion cm³/ : 9,0
1000H.: -

Low-idle speed regulation:

Speed 1/min: 350
Del.quantity cm³/
1000H.: 5,5...9,5
KSB solenoid-operated
valve volt: 12,0
Dispersion cm³/ : 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1340
Charge press. hPa: 1200
Del.quantity cm³/
1000H.: 52,5...58,5
KSB solenoid-operated
valve volt: 12,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm³/1000H.: 60,0
KSB solenoid-operated
valve volt: 12,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450*
Charge press. hPa: -
TD travel mm: 3,0...4,0 *
mm: -

KSB solenoid-operated
valve volt: -
2nd speed 1/min: 1000
Charge press. hPa: 1200
TD travel mm: 0,5...1,3
mm: (0,2...1,6)

KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 1100
Charge press. hPa: 1200
TD travel mm: 1,3...1,7
mm: (0,8...2,2)

KSB solenoid-operated
valve volt: 12,0
4th speed 1/min: 1250
Charge press. hPa: 1200
TD travel mm: 2,2...3,0
mm: (1,9...3,3)

KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1200
Supply-pump
pressure bar: 4,1...4,7

KSB solenoid-operated
valve volt: 12,0
2nd speed 1/min: 1100
Charge press. hPa: 1200

Supply-pump
pressure bar: 6,8...7,4

KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 1250
Charge press. hPa: 1200

Supply-pump
pressure bar: 7,5...8,1

KSB solenoid-operated
valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12,0

Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point hPa: 700
LDA stroke mm: 6,2
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 68,0...69,0
1000H.: (64,5...72,5)

2nd speed 1/min: 1550
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 0,0...3,0
1000H.: -

3rd speed 1/min: 1450
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 0,0...15,0
1000H.: -

4th speed 1/min: 1410
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 15,0...55,0
1000H.: -

5th speed 1/min: 1340
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 52,5...58,5
1000H.: (49,5...61,5)

6th speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 69,0...72,0
1000H.: (67,5...73,5)

7th speed 1/min: 1100
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 73,0...74,0
1000H.: (70,5...76,5)

8th speed 1/min: 750
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0

Del.quantity cm³/: 72,0...77,0
 1000H: (70,0...79,0)
 9th speed 1/min: 500
 Charge press. hPa: 1200
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm³/: 79,0...91,0
 1000H: -
 10th speed 1/min: 500
 Charge press. hPa: -
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm³/: 51,0...52,0
 1000H: (47,5...55,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
 Del.quantity cm³/: 0..3
 1000H.: -

Electr. shutoff:

Speed 1/min: 350
 ELAB volt: -
 Del.quantity cm³/: 0,0...3,0
 max. 1000H.: -

Idle delivery:

1st speed 1/min: 350
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm³/: 5,5...9,5
 1000H.: (2,5...12,5)
 2nd speed 1/min: 300
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm³/: 8,5...16,5
 1000H.: -
 3rd speed 1/min: 450
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm³/: 0,0...4,0
 1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm³/: -
 ind. 1000H: 60,0

2nd speed 1/min: 250
 KSB solenoid-operated
 valve volt: 12,0

Del.quantity cm³/: -
 max. 1000H: 50,0

Shutoff electromagnet:

Cut-in
 min. voltage : 10,0
 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,7
KF	mm	: K-OT
MS	mm	: 0,8...1,2
SVS max.	mm	: 1,4
XK	mm	: 18.8...20.8
XL	mm	: 12.5...15.9

* Correction at adjusting nut (46)
 emarks:

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U28
Edition : 17.01.90
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R278
Type number : 0 460 426 103
Customer Part-No. : 3 914 889

Customer-specific information
Customer : CDC

Engine : 6 BT-5.9A

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC): -

Start of delivery block
Piston stroke mm: 1,4
mm: $\pm 0,02(0,04)$

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100

G04

Charge press. hPa: 1200
Setting value mm: 1,3...1,7
KSB solenoid-operated
valve volt: 24,0

Supply-pump pressure:

Speed 1/min: 1100
Charge press. hPa: 1200
Setting value bar: 6,8...7,4
KSB solenoid-operated
valve volt: 24,0

Full-load del. with charge press.:

Speed 1/min: 1100
Charge press. hPa: 1200
Del.quantity cm³/
1000H.: 73,0...74,0
KSB solenoid-operated
valve volt: 24,0
Dispersion cm³ / : 4,0
1000H.: (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm³/
1000H.: 51,0...52,0
KSB solenoid-operated
valve volt: 24,0
Dispersion cm³ : 9,0
1000H.: -

Low-idle speed regulation:

Speed 1/min: 350
Del.quantity cm³/
1000H.: 5,5...9,5
KSB solenoid-operated
valve volt: 24,0
Dispersion cm³ : 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1340
Charge press. hPa: 1200
Del.quantity cm³/
1000H.: 52,5...58,5
KSB solenoid-operated
valve volt: 24,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm³/1000H.: 60,0
KSB solenoid-operated
valve volt: 24,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450*
Charge press. hPa: -
TD travel mm: 3,0...4,0 *

mm: -
KSB solenoid-operated
valve volt: -
2nd speed 1/min: 1000
Charge press. hPa: 1200
TD travel mm: 0,5...1,3
mm: (0,2...1,6)

KSB solenoid-operated
valve volt: 24,0
3rd speed 1/min: 1100
Charge press. hPa: 1200
TD travel mm: 1,3...1,7
mm: (0,8...2,2)

KSB solenoid-operated
valve volt: 24,0
4th speed 1/min: 1250
Charge press. hPa: 1200
TD travel mm: 2,2...3,0
mm: (1,9...3,3)

KSB solenoid-operated
valve volt: 24,0

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1200
Supply-pump
pressure bar: 4,1...4,7

KSB solenoid-operated
valve volt: 24,0

2nd speed 1/min: 1100
Charge press. hPa: 1200

Supply-pump
pressure bar: 6,8...7,4

KSB solenoid-operated
valve volt: 24,0

3rd speed 1/min: 1250
Charge press. hPa: 1200

Supply-pump
pressure bar: 7,5...8,1

KSB solenoid-operated
valve volt: 24,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 24,0

Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point hPa: 700
LDA stroke mm: 6,2
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 68,0...69,0
1000H.: (64,5...72,5)

2nd speed 1/min: 1550
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 0,0...3,0
1000H.: -

3rd speed 1/min: 1450
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 0,0...15,0
1000H.: -

4th speed 1/min: 1410
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 15,0...55,0
1000H.: -

5th speed 1/min: 1340
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 52,5...58,5
1000H.: (49,5...61,5)

6th speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 69,0...72,0
1000H.: (67,5...73,5)

7th speed 1/min: 1100
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 73,0...74,0
1000H.: (70,5...76,5)

8th speed 1/min: 750
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0

Del.quantity cm3/: 72,0...77,0
1000H: (70,0...79,0)
9th speed 1/min: 500
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm3/: 79,0...91,0
1000H: -
10th speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm3/: 51,0...52,0
1000H: (47,5...55,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
Del.quantity cm3/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 350
ELAB volt: -
Del.quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 350
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm3/: 5,5...9,5
1000H.: (2,5...12,5)
2nd speed 1/min: 300
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm3/: 8,5...16,5
1000H.: -
3rd speed 1/min: 450
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm3/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm3/: -
ind. 1000H: 60,0

2nd speed 1/min: 250
KSB solenoid-operated
valve volt: 24,0

Del.quantity cm3/: -
max. 1000H: 50,0

Shutoff electromagnet:

Cut-in
min. voltage : 20,0
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,7
KF	mm	: K-OT
MS	mm	: 0,8...1,2
SVS max.	mm	: 1,4
XK	mm	: 18.8...20.8
XL	mm	: 12.5...15.9

* Correction at adjusting nut (46)
emarks:

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 W22
Edition : 16.01.90
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R278
Type number : 0 460 426 103
Customer Part-No. : 3 914 927

Customer-specific information
Customer : CDC

Engine : 6 BT-5.9A

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC): -

Start of delivery block
Piston stroke mm: 1,4
mm: $\pm 0,02(0,04)$

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100

Charge press. hPa: 1200
Setting value mm: 1,3...1,7
KSB solenoid-operated
valve volt: 24,0

Supply-pump pressure:

Speed 1/min: 1100
Charge press. hPa: 1200
Setting value bar: 6,8...7,4
KSB solenoid-operated
valve volt: 24,0

Full-load del. with charge press.:

Speed 1/min: 1100
Charge press. hPa: 1200
Del.quantity cm3/
1000H.: 73,0...74,0
KSB solenoid-operated
valve volt: 24,0
Dispersion cm3/ : 4,0
1000H : (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm3/
1000H.: 51,0...52,0
KSB solenoid-operated
valve volt: 24,0
Dispersion cm3/ : 9,0
1000H.: -

Low-idle speed regulation:

Speed 1/min: 350
Del.quantity cm3/
1000H.: 5,5...9,5
KSB solenoid-operated
valve volt: 24,0
Dispersion cm3/ : 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1340
Charge press. hPa: 1200
Del.quantity cm3/
1000H: 52,5...58,5
KSB solenoid-operated
valve volt: 24,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 60,0
KSB solenoid-operated
valve volt: 24,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450*
Charge press. hPa: -
TD travel mm: 3,0...4,0 *
mm: -
KSB solenoid-operated
valve volt: -
2nd speed 1/min: 1000
Charge press. hPa: 1200
TD travel mm: 0,5...1,3
mm: (0,2...1,6)
KSB solenoid-operated
valve volt: 24,0
3rd speed 1/min: 1100
Charge press. hPa: 1200
TD travel mm: 1,3...1,7
mm: (0,8...2,2)
KSB solenoid-operated
valve volt: 24,0
4th speed 1/min: 1250
Charge press. hPa: 1200
TD travel mm: 2,2...3,0
mm: (1,9...3,3)
KSB solenoid-operated
valve volt: 24,0

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1200
Supply-pump
pressure bar: 4,1...4,7
KSB solenoid-operated
valve volt: 24,0
2nd speed 1/min: 1100
Charge press. hPa: 1200
Supply-pump
pressure bar: 6,8...7,4
KSB solenoid-operated
valve volt: 24,0
3rd speed 1/min: 1250
Charge press. hPa: 1200
Supply-pump
pressure bar: 7,5...8,1
KSB solenoid-operated
valve volt: 24,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 24,0

Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point hPa: 700
LDA stroke mm: 6,2
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³: 68,0...69,0
1000H.: (64,5...72,5)
2nd speed 1/min: 1550
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³: 0,0...3,0
1000H.: -
3rd speed 1/min: 1450
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³: 0,0...15,0
1000H.: -
4th speed 1/min: 1410
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³: 15,0...55,0
1000H.: -
5th speed 1/min: 1340
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³: 52,5...58,5
1000H.: (49,5...61,5)
6th speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³: 69,0...72,0
1000H.: (67,5...73,5)
7th speed 1/min: 1100
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³: 73,0...74,0
1000H.: (70,5...76,5)
8th speed 1/min: 750
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0

Del.quantity cm3/: 72,0...77,0
1000H: (70,0...79,0)
9th speed 1/min: 500
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm3/: 79,0...91,0
1000H: -
10th speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm3/: 51,0...52,0
1000H: (47,5...55,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
Del.quantity cm3/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 350
ELAB volt: -
Del.quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 350
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm3/: 5,5...9,5
1000H.: (2,5...12,5)
2nd speed 1/min: 300
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm3/: 8,5...16,5
1000H.: -
3rd speed 1/min: 450
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm3/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm3/: -
ind. 1000H: 60,0

2nd speed 1/min: 250
KSB solenoid-operated
valve volt: 24,0

Del.quantity cm3/: -
max. 1000H : 50,0

Shutoff electromagnet:

Cut-in
min. voltage : 20,0
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,7
KF	mm	: K-OT
MS	mm	: 0,8...1,2
SVS max.	mm	: 1,4
XK	mm	: 18.8...20.8
XL	mm	: 12.5...15.9

* Correction at adjusting nut (46)
emarks:

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 W24
Edition : 16.01.90
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R278
Type number : 0 460 426 103
Customer Part-No. : 3 915 255

Customer-specific information
Customer : CDC

Engine : 6 BT-5.9A

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC): -

Start of delivery block
Piston stroke mm: 1,4
mm: ±0,02(0,04)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100

Charge press. hPa: 1200
Setting value mm: 1,3...1,7
KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1100
Charge press. hPa: 1200
Setting value bar: 6,8...7,4
KSB solenoid-operated
valve volt: 12,0

Full-load del. with charge press.:

Speed 1/min: 1100
Charge press. hPa: 1200
Del.quantity cm³/
1000H.: 73,0...74,0
KSB solenoid-operated
valve volt: 12,0
Dispersion cm³ : 4,0
1000H.: (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm³/
1000H.: 51,0...52,0
KSB solenoid-operated
valve volt: 12,0
Dispersion cm³ : 9,0
1000H.: -

Low-idle speed regulation:

Speed 1/min: 350
Del.quantity cm³/
1000H.: 5,5...9,5
KSB solenoid-operated
valve volt: 12,0
Dispersion cm³ : 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1340
Charge press. hPa: 1200
Del.quantity cm³/
1000H.: 52,5...58,5
KSB solenoid-operated
valve volt: 12,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm³/1000H.: 60,0
KSB solenoid-operated
valve volt: 12,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450*
Charge press. hPa: -
TD travel mm: 3,0...4,0 *

mm: -
KSB solenoid-operated
valve volt: -
2nd speed 1/min: 1000
Charge press. hPa: 1200
TD travel mm: 0,5...1,3
mm: (0,2...1,6)

KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 1100
Charge press. hPa: 1200
TD travel mm: 1,3...1,7
mm: (0,8...2,2)

KSB solenoid-operated
valve volt: 12,0
4th speed 1/min: 1250
Charge press. hPa: 1200
TD travel mm: 2,2...3,0
mm: (1,9...3,3)

KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1200
Supply-pump
pressure bar: 4,1...4,7

KSB solenoid-operated
valve volt: 12,0

2nd speed 1/min: 1100
Charge press. hPa: 1200

Supply-pump
pressure bar: 6,8...7,4

KSB solenoid-operated
valve volt: 12,0

3rd speed 1/min: 1250
Charge press. hPa: 1200

Supply-pump
pressure bar: 7,5...8,1

KSB solenoid-operated
valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12,0

Overflow : 41...83
quantity cm³/10s: (26...98)

2nd speed 1/min: 1250

Charge press. hPa: 1200

KSB solenoid-operated

valve volt: 12,0

Overflow : 55...138

quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700

Charge-air pressure-setting

point hPa: 700

LDA stroke mm: 6,2

KSB solenoid-operated

valve volt: 12,0

Del.quantity cm³/: 68,0...69,0

1000H.: (64,5...72,5)

2nd speed 1/min: 1550

Charge press. hPa: 1200

KSB solenoid-operated

valve volt: 12,0

Del.quantity cm³/: 0,0...3,0

1000H.: -

3rd speed 1/min: 1450

Charge press. hPa: 1200

KSB solenoid-operated

valve volt: 12,0

Del.quantity cm³/: 0,0...15,0

1000H.: -

4th speed 1/min: 1410

Charge press. hPa: 1200

KSB solenoid-operated

valve volt: 12,0

Del.quantity cm³/: 15,0...55,0

1000H.: -

5th speed 1/min: 1340

Charge press. hPa: 1200

KSB solenoid-operated

valve volt: 12,0

Del.quantity cm³/: 52,5...58,5

1000H.: (49,5...61,5)

6th speed 1/min: 1250

Charge press. hPa: 1200

KSB solenoid-operated

valve volt: 12,0

Del.quantity cm³/: 69,0...72,0

1000H.: (67,5...73,5)

7th speed 1/min: 1100

Charge press. hPa: 1200

KSB solenoid-operated

valve volt: 12,0

Del.quantity cm³/: 73,0...74,0

1000H.: (70,5...76,5)

8th speed 1/min: 750

Charge press. hPa: 1200

KSB solenoid-operated

valve volt: 12,0

Del.quantity cm3/: 72,0...77,0
 1000H: (70,0...79,0)
 9th speed 1/min: 500
 Charge press. hPa: 1200
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm3/: 79,0...91,0
 1000H: -
 10th speed 1/min: 500
 Charge press. hPa: -
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm3/: 51,0...52,0
 1000H: (47,5...55,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
 Del.quantity cm3/: 0..3
 1000H.: -

Electr. shutoff:

Speed 1/min: 350
 ELAB volt: -
 Del.quantity cm3/: 0,0...3,0
 max. 1000H.: -

Idle delivery:

1st speed 1/min: 350
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm3/: 5,5...9,5
 1000H.: (2,5...12,5)
 2nd speed 1/min: 300
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm3/: 8,5...16,5
 1000H.: -
 3rd speed 1/min: 450
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm3/: 0,0...4,0
 1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm3/: -
 ind. 1000H: 60,0

2nd speed 1/min: 250
 KSB solenoid-operated
 valve volt: 12,0

Del.quantity cm3/: -
 max. 1000H: 50,0

Shutoff electromagnet:

Cut-in
 min. voltage : 10,0
 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,7
KF	mm	: K-0T
MS	mm	: 0,8...1,2
SVS max.	mm	: 1,4
XK	mm	: 18.8...20.8
XL	mm	: 12.5...15.9

* Correction at adjusting nut (46)
 emarks:

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 W20
Edition : 16.01.90
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R278
Type number : 0 460 426 103
Customer Part-No. : 3 915 525

Customer-specific information
Customer : CDC

Engine : 6 BT-5.9A

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC): -

Start of delivery block
Piston stroke mm : 1,4
mm : +0,02(0,04)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100

Charge press. hPa: 1200
Setting value mm: 1,3...1,7
KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1100
Charge press. hPa: 1200
Setting value bar: 6,8...7,4
KSB solenoid-operated
valve volt: 12,0

Full-load del. with charge press.:

Speed 1/min: 1100
Charge press. hPa: 1200
Del.quantity cm3/
1000H.: 73,0...74,0
KSB solenoid-operated
valve volt: 12,0
Dispersion cm3/ : 4,0
1000H.: (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm3/
1000H.: 51,0...52,0
KSB solenoid-operated
valve volt: 12,0
Dispersion cm3/ : 9,0
1000H.: -

Low-idle speed regulation:

Speed 1/min: 350
Del.quantity cm3/
1000H.: 5,5...9,5
KSB solenoid-operated
valve volt: 12,0
Dispersion cm3/ : 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1340
Charge press. hPa: 1200
Del.quantity cm3/
1000H.: 52,5...58,5
KSB solenoid-operated
valve volt: 12,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 60,0
KSB solenoid-operated
valve volt: 12,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450*
Charge press. hPa: -
TD travel mm: 3,0...4,0 *
mm: -
KSB solenoid-operated
valve volt: -
2nd speed 1/min: 1000
Charge press. hPa: 1200
TD travel mm: 0,5...1,3
mm: (0,2...1,6)
KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 1100
Charge press. hPa: 1200
TD travel mm: 1,3...1,7
mm: (0,8...2,2)
KSB solenoid-operated
valve volt: 12,0
4th speed 1/min: 1250
Charge press. hPa: 1200
TD travel mm: 2,2...3,0
mm: (1,9...3,3)
KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1200
Supply-pump
pressure bar: 4,1...4,7
KSB solenoid-operated
valve volt: 12,0
2nd speed 1/min: 1100
Charge press. hPa: 1200
Supply-pump
pressure bar: 6,8...7,4
KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 1250
Charge press. hPa: 1200
Supply-pump
pressure bar: 7,5...8,1
KSB solenoid-operated
valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12,0

Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point hPa: 700
LDA stroke mm: 6,2
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 68,0...69,0
1000H.: (64,5...72,5)
2nd speed 1/min: 1550
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 0,0...3,0
1000H.: -
3rd speed 1/min: 1450
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 0,0...15,0
1000H.: -
4th speed 1/min: 1410
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 15,0...55,0
1000H.: -
5th speed 1/min: 1340
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 52,5...58,5
1000H.: (49,5...61,5)
6th speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 69,0...72,0
1000H.: (67,5...73,5)
7th speed 1/min: 1100
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 73,0...74,0
1000H.: (70,5...76,5)
8th speed 1/min: 750
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0

Del.quantity cm3/: 72,0...77,0
1000H: (70,0...79,0)
9th speed 1/min: 500
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 79,0...91,0
1000H: -
10th speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 51,0...52,0
1000H: (47,5...55,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
Del.quantity cm3/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 350
ELAB volt: -
Del.quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 350
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 5,5...9,5
1000H.: (2,5...12,5)
2nd speed 1/min: 300
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 8,5...16,5
1000H.: -
3rd speed 1/min: 450
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm3/: -
ind. 1000H: 60,0

2nd speed 1/min: 250
KSB solenoid-operated
valve volt: 12,0

Del.quantity cm3/: -
max. 1000H : 50,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : 3,7
KF mm : K-OT
MS mm : 0,8...1,2
SVS max. mm : 1,4
XK mm : 18.8...20.8
XL mm : 12.5...15.9
* Correction at adjusting nut (46)
emarks:

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 W23
Edition : 16.01.90
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R278
Type number : 0 460 426 103
Customer Part-No. : 3 915 526

Customer-specific information
Customer : CDC

Engine : 6 BT-5.9A

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC): -

Start of delivery block
Piston stroke mm : 1,4
mm : +0,02(0,04)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100

Charge press. hPa: 1200
Setting value mm: 1,3...1,7
KSB solenoid-operated
valve volt: 24,0

Supply-pump pressure:

Speed 1/min: 1100
Charge press. hPa: 1200
Setting value bar: 6,8...7,4
KSB solenoid-operated
valve volt: 24,0

Full-load del. with charge press.:

Speed 1/min: 1100
Charge press. hPa: 1200
Del.quantity cm3/
1000H.: 73,0...74,0
KSB solenoid-operated
valve volt: 24,0
Dispersion cm3/ : 4,0
1000H : (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm3/
1000H.: 51,0...52,0
KSB solenoid-operated
valve volt: 24,0
Dispersion cm3/ : 9,0
1000H.: -

Low-idle speed regulation:

Speed 1/min: 350
Del.quantity cm3/
1000H.: 5,5...9,5
KSB solenoid-operated
valve volt: 24,0
Dispersion cm3/ : 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1340
Charge press. hPa: 1200
Del.quantity cm3/
1000H: 52,5...58,5
KSB solenoid-operated
valve volt: 24,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 60,0
KSB solenoid-operated
valve volt: 24,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450*
Charge press. hPa: -
TD travel mm: 3,0...4,0 *
mm: -

KSB solenoid-operated
valve volt: -
2nd speed 1/min: 1000
Charge press. hPa: 1200
TD travel mm: 0,5...1,3
mm: (0,2...1,6)

KSB solenoid-operated
valve volt: 24,0
3rd speed 1/min: 1100
Charge press. hPa: 1200
TD travel mm: 1,3...1,7
mm: (0,8...2,2)

KSB solenoid-operated
valve volt: 24,0
4th speed 1/min: 1250
Charge press. hPa: 1200
TD travel mm: 2,2...3,0
mm: (1,9...3,3)

KSB solenoid-operated
valve volt: 24,0

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1200
Supply-pump
pressure bar: 4,1...4,7

KSB solenoid-operated
valve volt: 24,0
2nd speed 1/min: 1100
Charge press. hPa: 1200

Supply-pump
pressure bar: 6,8...7,4

KSB solenoid-operated
valve volt: 24,0

3rd speed 1/min: 1250
Charge press. hPa: 1200

Supply-pump
pressure bar: 7,5...8,1

KSB solenoid-operated
valve volt: 24,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 24,0

Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point hPa: 700
LDA stroke mm: 6,2
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 68,0...69,0
1000H.: (64,5...72,5)

2nd speed 1/min: 1550
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 0,0...3,0
1000H.: -

3rd speed 1/min: 1450
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 0,0...15,0
1000H.: -

4th speed 1/min: 1410
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 15,0...55,0
1000H.: -

5th speed 1/min: 1340
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 52,5...58,5
1000H.: (49,5...61,5)

6th speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 69,0...72,0
1000H.: (67,5...73,5)

7th speed 1/min: 1100
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 73,0...74,0
1000H.: (70,5...76,5)

8th speed 1/min: 750
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0

Del.quantity cm³/: 72,0...77,0
1000H: (70,0...79,0)
9th speed 1/min: 500
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 79,0...91,0
1000H: -
10th speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 51,0...52,0
1000H: (47,5...55,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
Del.quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 350
ELAB volt: -
Del.quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 350
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 5,5...9,5
1000H.: (2,5...12,5)
2nd speed 1/min: 300
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 8,5...16,5
1000H.: -
3rd speed 1/min: 450
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
KSB solenoid-operated
valve volt: 24,0
Del.quantity cm³/: -
ind. 1000H: 60,0

2nd speed 1/min: 250
KSB solenoid-operated
valve volt: 24,0

Del.quantity cm³/: -
max. 1000H : 50,0

Shutoff electromagnet:

Cut-in
min. voltage : 20,0
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,7
KF	mm	: K-OT
MS	mm	: 0,8...1,2
SVS max.	mm	: 1,4
XK	mm	: 18.8...20.8
XL	mm	: 12.5...15.9

* Correction at adjusting nut (46)
emarks:

* Unscrew KSB ball valve 2 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 9,0 h
Edition : 12.02.1990
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 848 006

Injection pump
Pump designation : PES8A75D32ORS2286
Governor
Governor design. : RQ300/1500AB723DR

Customer-spec. information
Customer : IHC

Engine : DV 550 B

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 35...45

Inlet press., bar : 2.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 702

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 3.95...4.05
: (-)
Rack travel in mm : 9.5
Firing order : 1-8-7-3-6-5-4-2

Phasing : 0-45-90-135-180-225-
Phasing : 270-315
Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

G19

1st speed rpm : 1500

Rack travel in mm : 10.0

Del.quantity cm3/ : 6.2...6.5

100 s : (-)

2nd speed rpm : 300

Rack travel in mm : 6.90...7.10

Del.quantity cm3/ : 2.55 *

100 s : (-)

3rd speed rpm : 300

Rack travel in mm : 6.90...7.10

Del.quantity cm3/ : 0.1...0.45**

100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 19.6...20.4

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1500

Del.quantity : 59.0...61.0

1000 : (-)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 20.0

Testing:

1st rack travel in: 17.80

Speed rpm : 1490...1510

2nd rack travel in: 5.00

Speed rpm : 1635...1665

3rd rack travel in: 7.0...13.7

Speed rpm : 1600

4th rack travel in: 1770

Speed rpm : 0.0...1.0

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 630

Rack travel in mm : -

Testing:

Speed rpm : 100

Minimum rack travel: 9.8

Speed rpm : 200

Rack travel in mm : 8.4...11.5

Rack travel in mm : 7.85

Speed rpm : 285...315
Speed rpm : 400
Maximum rack trave: 6.2
Speed rpm : 530
Rack travel in mm : -

TORQUE CONTROL

Dimension a mm : 0.5
Torque control curve - 1st version
1st speed rpm : 700
Rack travel in m: 19.9...20.0
2nd speed rpm : 900
Rack travel in m: 19.2...19.5
3rd speed rpm : 1100
Rack travel in m: 18.2...18.6

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 1000
Del.quantity cm3/ : 54.0...58.0
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: ?
Speed rpm : 1540

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 81.0...101.0
1000 s: (-)

LOW IDLE

Speed rpm : 300
Del.quantity cm3/ : 14.5...18.5
1000 s: (-)

Remarks:

:

* = Cylinders 1,7,6 and 4

** = Cylinders 2,8,3 and 5

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 9,0 h 2
Edition : 13.02.1990
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 848 008

Injection pump
Pump designation : PES8A75D320RS2286
Governor
Governor design. : RQ300/1500AB725DR

Customer-spec. information
Customer : IHC

Engine : DV 462 B

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 35...45

Inlet press., bar : 2.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 702

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 3.95...4.05
Rack travel in mm : 8.40
Firing order : 1-8-7-3-6-5-4-2

Phasing : 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 1500

Rack travel in mm : 10.0

Del.quantity cm3/ : 6.20...6.50

100 s : (-)

2nd speed rpm : 300
Rack travel in mm : 6.90...7.10
Del.quantity cm3/ : 2.55 *

100 s : (-)

3rd speed rpm : 300
Rack travel in mm : 6.90...7.10
Del.quantity cm3/ : 0.1...0.45**
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 19.6...20.4

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1500
Del.quantity : 49.0...51.0
1000 : (-)

RATED SPEED

1st version

Setting point:

Speed rpm : 650
Rack travel in mm : 20.0

Testing:

1st rack travel in: 18.45
Speed rpm : 1490...1510
2nd rack travel in: 4.60
Speed rpm : 1655...1685
3rd rack travel in: 7.6...14.6
Speed rpm : 1600
4th rack travel in: 1780
Speed rpm : 0.0...1.0

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 620
Rack travel in mm : -

Testing:

Speed rpm : 100
Minimum rack trave: 9.7
Speed rpm : 200
Rack travel in mm : 8.3...11.4
Rack travel in mm : 7.65
Speed rpm : 285...315

Speed rpm : 400
Maximum rack travel: 6.0
Speed rpm : 520
Rack travel in mm : -

TORQUE CONTROL

Dimension a mm : 0.35
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 19.7...20.0
2nd speed rpm : 1250
Rack travel in m: 19.0...19.4
3rd speed rpm : 1350
Rack travel in m: 18.6...18.9

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 1000
Del.quantity cm³/ : 45.0...48.0
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: ?
Speed rpm : 1540

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 81.0...104.0
1000 s: (-)

LOW IDLE

Speed rpm : 300
Del.quantity cm³/ : 14.5...18.5 *
1000 s: (-)

Remarks:

* = Cylinders 1,7,6 and 4

** = Cylinders 2,8,3 and 5

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 q
Edition : 01.02.90
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 866 154

Injection pump
Pump designation : PES6A100D320/3RS2691
-4

EP type number : 9 410 230 030

Governor

Governor design. : RSV450...1100AOC2241
-R

Governer no. : 0 420 233 256

Customer-spec. information

Customer : C.D.C.

Engine : 6CT830

1st version kW : 134.2

Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.20...11.30

Del.quantity cm³/ : 10.1...10.3

100 s: (9.9...10.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 5.7...5.9

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del.quantity : 101.0...103.0

1000 : (99.0...105.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 49...57

Testing:

1st rack travel in: 10.20
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1210...1240
3rd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 29...37
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 450
Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.20...11.30
2nd speed rpm : 750
Rack travel in m: 12.00...12.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.00...12.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.70...10.80
2nd pressure hPa : 305
Rack travel in m: 11.10...11.20
3rd pressure hPa : 425
Rack travel in m: 11.50...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 750
Del.quantity cm³/ : 110.5...114.5
1000 s: (108.5...116.5)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 78.0...80.0
1000 s: (76.0...82.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: C.D.C. # 3915995

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 j 7
 Edition : 13.02.1990
 Replaces : -
 Test oil : ISO 4113
 Combination no. : 0 400 874 022
 Injection pump
 Pump designation : PES4A80C420LS2054
 Governor
 Governor design. : RSV300...1000A2B137D
 R

Customer-spec. information
 Customer : CASE

Engine : A-267DF

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 35...45

Overflow valve
 : CASE

Inlet press., bar : 1.3

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.15...2.25
 Rack travel in mm : 9.00...12.00
 Firing order : 1-3-4-2

Phasing : 0-90-180-270
 Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 9.00
 Del.quantity cm3/ : 5.55...6.05
 100 s: (-)
 2nd speed rpm : 1000
 Rack travel in mm : 15.0
 Del.quantity cm3/ : 11.55...12.85
 100 s: (-)
 Spread cm3 : 0.4
 100 s: (-)
 3rd speed rpm : 200
 Rack travel in mm : 6.0
 Del.quantity cm3/ : 1.35...2.25
 100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 980
 Del.quantity : 66.0...68.0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 39...47

Testing:
 1st rack travel in: 9.20
 Speed rpm : 1005...1025
 2nd rack travel in: 7.20
 Speed rpm : 1025...1055
 3rd rack travel in: 2.80...4.10
 Speed rpm : 1085...1115
 4th rack travel in: 1200
 Speed rpm : 0.0...1.00

LOW IDLE 1

Control lever
 position degrees: 20...28
 Setting point w/out bumper spring
 Speed rpm : 300
 Rack travel in mm : 5.80

Testing:
 Speed rpm : 150

Minimum rack trave: 19.0
Speed rpm : 300
Rack travel in mm : 5.5...6.1
Rack travel in mm : 2.90
Speed rpm : 400
Speed rpm : 500
Maximum rack trave: 1.0

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 700
Rack travel in m: 0.80...1.00
2nd speed rpm : 400
Rack travel in m: 1.0...1.3

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm3/ : 76.5...79.5
1000 s: (-)
Speed rpm : 500
Del.quantity cm3/ : 73.0...76.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: ?
Speed rpm : 1000...1015

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 74.0...84.0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1090
Del.quantity cm3/ : 14.5...22.5
1000 s: (-)

Remarks:

: CASE # A22636

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 j 1
Edition : 13.02.1990
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 874 057
Injection pump
Pump designation : PES4A80C420LS2054
Governor
Governor design. : RSV300...1000A2B137D
R

Customer-spec. information
Customer : CASE

Engine : A-267DF

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 35...45

Overflow valve
: CASE

Inlet press., bar : 1.3

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.15...2.25
: (2.10...2.30)
Rack travel in mm : 9.0...12.0
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9.0

Del.quantity cm³/ : 5.55...6.05

100 s : (-)

Spread cm³ : 0.40

100 s : (-)

2nd speed rpm : 1000

Rack travel in mm : 15.0

Del.quantity cm³/ : 11.55...12.85

100 s : (-)

Spread cm³ : 0.4

100 s : (-)

3rd speed rpm : 200

Rack travel in mm : 6.0

Del.quantity cm³/ : 1.35...2.25

100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 980

Del.quantity : 66.0...68.0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

1st rack travel in: 9.20

Speed rpm : 1005...1025

2nd rack travel in: 7.20

Speed rpm : 1025...1055

3rd rack travel in: 2.80...4.10

Speed rpm : 1085...1115

4th rack travel in: 1200

Speed rpm : 0.0...1.00

LOW IDLE 1

Control lever

position degrees: 20...28

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 5.80

Testing:

Speed rpm : 150

Minimum rack trave: 19.00

Speed rpm : 300

Rack travel in mm : 5.50...6.10

Rack travel in mm : 2.90

Speed rpm : 400

Speed rpm : 500

Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 700

Rack travel in m: 0.80...1.00

2nd speed rpm : 400

Rack travel in m: 1.00...1.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/ : 76.5...79.5

1000 s: (-)

Speed rpm : 500

Del.quantity cm3/ : 73.0...76.0

1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: ?

Speed rpm : 1000...1015

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 74.0...84.0

1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1090

Del.quantity cm3/ : 14.5...22.5

1000 s: (-)

Remarks:

: CASE # A22636

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 1 a 3
Edition : 13.02.1990
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 874 088
Injection pump
Pump designation : PES4A80C420LS2263
Governor
Governor design. : RSV375...950A2B518DR

Customer-spec. information
Customer : CASE

Engine : A-267BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 35...45

Overflow valve : CASE

Inlet press., bar : 1.3

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test Lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.15...2.25
: (2.10...2.30)
Rack travel in mm : 9.00...12.00
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0.5 (0.75)

HO1

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 9.00
Del. quantity cm³/ : 4.15...4.55
100 s : (-)
Spread cm³ : 0.3
100 s : (-)
2nd speed rpm : 1000
Rack travel in mm : 12.00
Del. quantity cm³/ : 6.85...7.65
100 s : (-)
Spread cm³ : 0.30
100 s : (-)
3rd speed rpm : 200
Rack travel in mm : 6.00
Del. quantity cm³/ : 1.35...2.15
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 930
Del. quantity : 59.0...61.0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 42...50

Testing:
1st rack travel in: 11.00
Speed rpm : 960...980
2nd rack travel in: 9.00
Speed rpm : 985...1015
3rd rack travel in: 2.40...4.80
Speed rpm : 1085...1115
4th rack travel in: 1200
Speed rpm : 0.0...1.00

LOW IDLE 1

Control lever
position degrees: 25...33
Setting point w/out bumper spring
Speed rpm : 375

Rack travel in mm : 6.50

Testing:

Speed rpm : 150
Minimum rack travel: 19.00
Speed rpm : 375
Rack travel in mm : 6.20...6.80
Rack travel in mm : 0.65
Speed rpm : 450
Speed rpm : 630
Maximum rack travel: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 960
Rack travel in m: -
2nd speed rpm : 800
Rack travel in m: 0.30...0.50
3rd speed rpm : 450
Rack travel in m: 0.70...1.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del. quantity cm³/ : 66.0...69.0
1000 s: (-)
Speed rpm : 550
Del. quantity cm³/ : <65.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: ?
Speed rpm : 970

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 111.0...117.0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1040
Del. quantity cm³/ : 8.50...18.50
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del. quantity cm³/ : 12.5...16.5
1000 s: (-)

H02

Remarks:

: CASE # A-5833

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 4,9 a 4
Edition : 13.2.90
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 874 107
Injection pump
Pump designation : PES4A85C420LS2263
Governor
Governor design. : RSV375...1000A2B547D
R

Customer-spec. information
Customer : CASE

Engine : A-301 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 40

Overflow valve
: CASE

Inlet press., bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.15...2.25
: (2.10...2.30)
Rack travel in mm : 9.00...12.00
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9.00

Del. quantity cm3/ : 4.15...45.5

100 s: (-)

Spread cm3 : 0.4

100 s: (-)

2nd speed rpm : 1000

Rack travel in mm : 12.00

Del. quantity cm3/ : 1.25...8.05

100 s: (-)

3rd speed rpm : 200

Rack travel in mm : 6.00

Del. quantity cm3/ : 0.95...1.75

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del. quantity : 69.5...71.5

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 35...43

Testing:

1st rack travel in: 11.40

Speed rpm : 1010...1030

2nd rack travel in: 7.20

Speed rpm : 1045...1075

3rd rack travel in: 3.60...4.90

Speed rpm : 1085...1115

4th rack travel in: 1200

Speed rpm : 0.30...1.00

LOW IDLE 1

Control lever

position degrees: 17...25

Setting point w/out bumper spring

Speed rpm : 375

Rack travel in mm : 7.50

Testing:

Speed rpm : 150
Minimum rack travel: 19.00
Speed rpm : 375
Rack travel in mm : 7.20...7.80
Rack travel in mm : 4.50
Speed rpm : 450
Speed rpm : 600
Maximum rack travel: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000
Rack travel in m: -
2nd speed rpm : 800
Rack travel in m: 0.80...1.00
3rd speed rpm : 400
Rack travel in m: 1.50...1.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 85.0...89.0
1000 s: (-)
Speed rpm : 500
Del.quantity cm3/ : < 87.5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: ?
Speed rpm : 1040...1055

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 124.0...134.0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1090
Del.quantity cm3/ : 9.5...17.5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 15.5...19.5
1000 s: (-)

Remarks:

: CASE # A60632
Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 5.5 e 6
 Edition : 25.01.1990
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 874 131
 Injection pump
 Pump designation : PES4A85C420LS2263
 Governor
 Governor design. : RSV375...1100A2B554D
 R

Customer-spec. information
 Customer : CASE

Engine : A 336 BD

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : CASE

Inlet press., bar : 1.0

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.15...2.25
 : (2.10...2.30)
 Rack travel in mm : 9.00...12.00
 Firing order : 1-3-4-2

Phasing : 0-90-180-270
 Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9.00

Del.quantity cm³/ : 4.1...4.5

100 s : (-)

Spread cm³ : 0.4

100 s : (-)

2nd speed rpm : 1000
 Rack travel in mm : 12.00
 Del.quantity cm³/ : 7.2...8.0
 100 s : (-)

3rd speed rpm : 200
 Rack travel in mm : 6.00
 Del.quantity cm³/ : 0.9...1.7
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3

Speed rpm : 800
 Rack travel in mm : 0.30...1.40

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 80.5...82.5
 1000 : (79.5...83.5)

RATED SPEED

1st version
 Control lever
 position degrees: 35...43

Testing:
 1st rack travel in: 12.20
 Speed rpm : 1110...1130
 2nd rack travel in: 7.40
 Speed rpm : 1145...1175
 3rd rack travel in: 4.30...5.60
 Speed rpm : 1185...1215
 4th rack travel in: 1300
 Speed rpm : 0.30...1.00

LOW IDLE 1
 Control lever

position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 7.70

Testing:

Speed rpm : 150
Minimum rack trave: 19.00
Speed rpm : 375
Rack travel in mm : 7.4...8.0
Rack travel in mm : 4.35
Speed rpm : 450
Speed rpm : 580
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: -
2nd speed rpm : 900
Rack travel in m: 0.30...0.50
3rd speed rpm : 500
Rack travel in m: 0.40...0.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 86.0...89.0
1000 s: (85.0...90.0)
Speed rpm : 650
Del.quantity cm3/ : < 88.0
1000 s: (< 89.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: ?
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 126.0...132.0
1000 s: (125.0...133.0)

HIGH IDLE

1st version

Speed rpm : 1200
Del.quantity cm3/ : 6.5...14.5
1000 s: (5.5...15.5)

LOW IDLE

H06

Speed rpm : 375
Del.quantity cm3/ : 18.5...22.5
1000 s: (17.5...23.5)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 4,9 a
 Edition : 15.02.1990
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 874 161
 Injection pump
 Pump designation : PES4A85D420LS2263
 Governor
 Governor design. : RSV375...1100A2B579D
 R

Customer-spec. information
 Customer : CASE

Engine : A-301 BD

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 35...45

Overflow valve
 : CASE

Inlet press., bar : 1.3

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.15...2.25
 : (2.10...2.30)
 Firing order : 1-3-4-2

Phasing : 0-90-180-270
 Tolerance + - ° : 0.5 (0.75)

H07

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 9.00
 Del.quantity cm3/ : 4.1...4.6
 100 s : (-)
 Spread cm3 : 0.4
 100 s : (-)
 2nd speed rpm : 1000
 Rack travel in mm : 12.00
 Del.quantity cm3/ : 7.2...8.1
 100 s : (-)
 3rd speed rpm : 200
 Rack travel in mm : 6.00
 Del.quantity cm3/ : 0.9...1.8
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 73.5...75.5
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 39...47

Testing:
 1st rack travel in: 11.40
 Speed rpm : 1110...1130
 2nd rack travel in: 7.40
 Speed rpm : 1145...1175
 3rd rack travel in: 4.50...5.80
 Speed rpm : 1185...1215
 4th rack travel in: 1300
 Speed rpm : 0.30...1.00

LOW IDLE 1

Control lever
 position degrees: 18...26
 Setting point w/out bumper spring
 Speed rpm : 375
 Rack travel in mm : 7.20

Testing:

Speed rpm : 150
Minimum rack trave: 19.00
Speed rpm : 375
Rack travel in mm : 6.90...7.50
Rack travel in mm : 4.40
Speed rpm : 450
Speed rpm : 600
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 0.30...0.50
2nd speed rpm : 500
Rack travel in m: 0.40...0.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 76.5...79.5
1000 s: (-)
Speed rpm : 650
Del.quantity cm3/ : < 78.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: ?
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 124.0...134.0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200
Del.quantity cm3/ : 6.5...14.5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 15.5...19.5
1000 s: (-)

Remarks:

: CASE # A 62453

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 5,5 e
Edition : 13.02.1990
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 874 163
Injection pump
Pump designation : PES4A85D420LS2263
Governor
Governor design. : RSV375...1000A2B519D
R

Customer-spec. information
Customer : CASE

Engine : A-336 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 35...45

Overflow valve : CASE

Inlet press., bar : 1.3

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.15...2.25
(2.10...2.30)
Rack travel in mm : 10.50
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9.00

Del.quantity cm3/ : 4.15...4.55

100 s : (-)

Spread cm3 : 0.4

100 s : (-)

2nd speed rpm : 200
Rack travel in mm : 6.00
Del.quantity cm3/ : 0.95...1.75
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3

Speed rpm : 800
Rack travel in mm : 0.30...1.40

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Del.quantity : 90.5...92.5
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 36...44

Testing:
1st rack travel in: 12.60
Speed rpm : 1010...1030
2nd rack travel in: 9.00
Speed rpm : 1045...1075
3rd rack travel in: 3.80...4.40
Speed rpm : 1005...1035
4th rack travel in: 1220
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 7.80

Testing:

Speed rpm : 150
Minimum rack trave: 19.00
Speed rpm : 375
Rack travel in mm : 7.50...8.10
Rack travel in mm : 4.85
Speed rpm : 450
Speed rpm : 600
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 800
Rack travel in m: 0.50...0.70
2nd speed rpm : 500
Rack travel in m: 0.60...0.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 100.5...104.5
1000 s: (-)
Speed rpm : 650
Del.quantity cm3/ : < 101.5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: ?
Speed rpm : 1040

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 124.0...134.0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1100
Del.quantity cm3/ : 11.5...19.5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 18.5...22.5
1000 s: (-)

Remarks:

: CASE # A62569

H10

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8.3 j 4
 Edition : 13.02.1990
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 007
 Injection pump
 Pump designation : PES6A80C420LS2054
 Governor
 Governor design. : RSV300...800A5B135DR

Customer-spec. information
 Customer : CASE

Engine : A 401 D

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 35...45

Overflow valve
 : CASE

Inlet press., bar : 1.3

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.15...2.25
 : (2.10...2.30)
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9.00

Del.quantity cm³/ : 5.55...6.05

100 s : (-)

Spread cm³ : 0.4

100 s : (-)

2nd speed rpm : 1000
 Rack travel in mm : 15.00
 Del.quantity cm³/ : 11.55...12.85
 100 s : (-)

3rd speed rpm : 200
 Rack travel in mm : 6.00
 Del.quantity cm³/ : 1.35...2.25
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 780
 Del.quantity : 66.5...68.5
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 40...48

Testing:
 1st rack travel in: 16.00
 Speed rpm : 810...830
 2nd rack travel in: 12.60
 Speed rpm : 855...885
 3rd rack travel in: 6.40
 Speed rpm : 925...955

LOW IDLE 1

Control lever

position degrees: 19...27

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.50

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 6.20...6.80
Rack travel in mm : 2.00
Speed rpm : 400
Speed rpm : 500
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 700
Rack travel in m: 0.20...0.50
2nd speed rpm : 600
Rack travel in m: 0.60...0.90
3rd speed rpm : 400
Rack travel in m: 0.80...1.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 71.5...74.5
1000 s: (-)
Speed rpm : 450
Del.quantity cm3/ : 70.5...75.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: ?
Speed rpm : 800...815

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...89.0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 880
Del.quantity cm3/ : 11.0...19.0
1000 s: (-)

Remarks:

: CASE # A22637

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control

spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 j 8
 Edition : 14.02.1990
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 022
 Injection pump
 Pump designation : PES6A85C420LS2054
 Governor
 Governor design. : RSV300...900A2B137DR

Customer-spec. information
 Customer : CASE

Engine : A-401

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6,00X2,00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

H13

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 9,00
 Del.quantity cm3/ : 5,65...6,02
 100 s : (-)
 2nd speed rpm : 1000
 Rack travel in mm : 15,00
 Del.quantity cm3/ : 11,55...12,85
 100 s : (-)
 3rd speed rpm : 200
 Rack travel in mm : 6,00
 Del.quantity cm3/ : 1,35...2,25
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 880
 Del.quantity : 79,8...81,8
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 35...43

LOW IDLE 1
 Control lever
 position degrees: 16...24
 Setting point w/out bumper spring
 Speed rpm : 300
 Rack travel in mm : 6,50
 Speed rpm : 300
 Rack travel in mm : 6.40...6.60

TORQUE CONTROL

Torque control curve - 1st version
 1st speed rpm : 900
 Rack travel in m: 9,00
 2nd speed rpm : 700
 Rack travel in m: 9,20...9,50
 3rd speed rpm : 600
 Rack travel in m: 9,60...9,90
 4th speed rpm : 450

Rack travel in m: 9,70...10,00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 78,5...81,5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 900...915

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 77,0...86,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 985
Del.quantity cm³/ : 10,0...18,0
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8.3 j 3
 Edition : 13.02.1990
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 036
 Injection pump
 Pump designation : PES6A80C420LS2054
 Governor
 Governor design. : RSV300...900A2B185DR

Customer-spec. information
 Customer : CASE

Engine : A 267 D

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 35...45

Overflow valve
 : CASE

Inlet press., bar : 1.3

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.15...2.25
 : (2.10...2.30)
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9.00

Del.quantity cm³/ : 5.55...6.05

100 s: (-)

Spread cm³ : 0.4

100 s: (-)

2nd speed rpm : 1000

Rack travel in mm : 15.00

Del.quantity cm³/ : 11.55...12.85

100 s: (-)

3rd speed rpm : 200

Rack travel in mm : 6.00

Del.quantity cm³/ : 1.35...2.25

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 880

Del.quantity : 63.5...65.5

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 38...46

Testing:

1st rack travel in: 9.40

Speed rpm : 905...925

2nd rack travel in: 7.20

Speed rpm : 935...965

3rd rack travel in: 3.40...4.60

Speed rpm : 985...1015

4th rack travel in: 1050

Speed rpm : 0.0...1.00

LOW IDLE 1

Control lever

position degrees: 21...29

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 5.50

spring retainer.

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.20...5.60
Rack travel in mm : 2.75
Speed rpm : 400
Speed rpm : 500
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 600
Rack travel in m: 0.50...0.80
2nd speed rpm : 400
Rack travel in m: 0.60...0.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 68.5...71.5
1000 s: (-)
Speed rpm : 500
Del.quantity cm3/ : 67.5...70.5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: ?
Speed rpm : 900...915

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 77.0...86.0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 990
Del.quantity cm3/ : 10.0...18.0
1000 s: (-)

Remarks:

: CASE # A34007

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 o
Edition : 14.02.1990
Replaces : -
Test oil : ISO-4113

Injection pump
Pump designation : PES6A90D420LS2354
Governor
Governor design. : RSV375...1050A2B710D
R

Customer-spec. information
Customer : CASE

Engine : A-504 BDT

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 35...45

Inlet press., bar : 1.3

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.15...2.25
(2.10...2.30)
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9.00

Del.quantity cm3/ : 4.8...5.1

100 s : (-)

Spread cm3 : 0.5

100 s : (-)

2nd speed rpm : 1000
Rack travel in mm : 12.00
Del.quantity cm3/ : 8.6...9.4
100 s : (-)

3rd speed rpm : 200
Rack travel in mm : 6.00
Del.quantity cm3/ : 0.72...1.33

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3

Speed rpm : 800
Rack travel in mm : 0.30...1.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del.quantity : 91.0...93.0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 36...44

Testing:
1st rack travel in: 12.20
Speed rpm : 1060...1080
2nd rack travel in: 8.70
Speed rpm : 1085...1115
3rd rack travel in: 4.50...6.20
Speed rpm : 1135...1165
4th rack travel in: 1250
Speed rpm : 0.30...1.00

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 7.80

Testing:
Speed rpm : 150
Minimum rack trave: 19.00
Speed rpm : 375
Rack travel in mm : 7.50...8.10
Rack travel in mm : 4.35

Speed rpm : 450
Speed rpm : 580
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: -

2nd speed rpm : 500

Rack travel in m: 0.10...0.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750

Del.quantity cm3/ : 91.0...95.0

1000 s: (-)

Speed rpm : 650

Del.quantity cm3/ : < 94.0

1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: ?

Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 134.0...144.0

1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1150

Del.quantity cm3/ : 14.0...18.0

1000 s: (-)

LOW IDLE

Speed rpm : 375

Del.quantity cm3/ : 18.0...22.5

1000 s: (-)

Remarks:

: CASE # A66215

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 d 1
Edition : 25.01.1990
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 276 050

Injection pump
Pump designation : PES6A100D41ORS3036
Governor
Governor design. : RSV600...1000A2B2082
L

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466A

1st version kW : 125
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 35...45

Test oil
Outlet temp, °C : -

Overflow valve
: 1 413 385 007

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 1.95...2.05
: (1.90...2.10)

Rack travel in mm : 10.5
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.5 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.8

Del.quantity cm3/ : 10.8...11.1

100 s: (-)

Spread cm3 : 0.3

100 s: (-)

2nd speed rpm : 400
Rack travel in mm : 6.6
Del.quantity cm3/ : 1.3...1.7
100 s: (-)
Spread cm3 : 0.3
100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.3...1.0

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Aneroid pressure h: 800
Del.quantity : 108.0...111.0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 41...49

Testing:
1st rack travel in: 9.8
Speed rpm : 1145...1155
2nd rack travel in: 4.0
Speed rpm : 1205...1235
4th rack travel in: 1300

Speed rpm : 0.3...1.7

LOW IDLE 1

Control lever

position degrees: 16...24

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm : 6.1

Testing:

Speed rpm : 100

Minimum rack trave: 19.0

Speed rpm : 400

Rack travel in mm : 6.6

Rack travel in mm : 2.0

Speed rpm : 480...540

Speed rpm : 850

Maximum rack trave: 1.0

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 10.75...10.85

2nd speed rpm : 650

Rack travel in m: 11.75...12.05

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 270

Rack travel mm : 11.75...11.85

Measurement

Speed 1/min : 500

1st pressure hPa : 170

Rack travel in m: 10.50...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

Speed rpm : 650

Del.quantity cm3/ : 115.5...118.5

1000 s: (-)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 77.5...80.5

1000 s: (-)

BREAKAWAY

1st version

H2O

1mm rack travel less than

full load rack tr: 9.8

Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 170.0...195.0

1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200

Del.quantity cm3/ : 27.0...37.0

1000 s: (-)

LOW IDLE

Speed rpm : 400

Del.quantity cm3/ : 13.0...17.0

1000 s: (-)

Remarks:

Start-of-delivery mark at control-rod travel 10.5 mm and 15° after start of delivery.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ALO 13,8 j
Edition : 16.02.1990
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 846 347

Injection pump
Pump designation : PE6P120A420LS316
Governor
Governor design. : RQV300...1050PA312KR

Customer-spec. information
Customer : ALLIS CHALMERS

Engine : 25 000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 443 022

Opening
pressure, bar : 172...175

Test lines : 1 680 750 060

Outside diameter
x Wall thickness
x Length mm : 8.00X2.00X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.8...2.9
: (2.75...2.95)
Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.00

Del.quantity cm3/ : 26.7...27.3

100 s: (-)

Spread cm3 : 1.2

100 s: (-)

2nd speed rpm : 600
Rack travel in mm : 15.00
Del.quantity cm3/ : 32.8...35.3
100 s: (-)

3rd speed rpm : 200
Rack travel in mm : 6.00
Del.quantity cm3/ : 3.5...4.5
100 s: (-)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400
travel mm : 1.8...2.7
2nd speed rpm : 550
travel mm : 3.8...4.2
3rd speed rpm : 1000
travel mm : 7.5...7.9
4th speed rpm : 1245
travel mm : 10.9...11.10

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del.quantity : 256.0...258.0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:
1st rack travel in: 16.50
Speed rpm : 1040...1060
2nd rack travel in: 12.85
Speed rpm : 1085...1115
3rd rack travel in: 6.00...11.60
Speed rpm : 1150
4th rack travel in: 1210
Speed rpm : 0.00...7.00
5th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 6...14

Testing:

Speed rpm : 250
Minimum rack trave: 6.40
Speed rpm : 350
Rack travel in mm : 3.00...5.20
Rack travel in mm : 2.05
Speed rpm : 435...465
Speed rpm : 550
Maximum rack trave: 1.00

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 480
Rack travel mm : -0.10...-0.30

Measurement

Speed 1/min : 500

1st pressure hPa : 330
Rack travel in m: -4.15...-4.55

START CUT-OUT

Speed 1/min : 150...250

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 700
Del.quantity cm3/ : 238.0...244.0
1000 s: (-)
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 171.0...179.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: ?
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...160.0
1000 s: (-)

LOW IDLE

H22

Speed rpm : 300
Del.quantity cm3/ : 19.0...25.0
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 8,0 p
Edition : 14.02.1990
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 846 351

Injection pump
Pump designation : PE6P100A720RS332
Governor
Governor design. : RQV200...1200PA168R

Customer-spec. information
Customer : SCANIA

Engine : DS 8

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 35...45

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.5...2.6
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 14.10

Del.quantity cm3/ : 13.4...13.8

100 s : (-)

Spread cm3 : 0.5

100 s : (-)

2nd speed rpm : 225
Rack travel in mm : 6.00
Del.quantity cm3/ : 1.0...1.2
100 s : (-)
Spread cm3 : 0.15
100 s : (-)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1200
Aneroid pressure h : 260
Del.quantity : 134.0...138.0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:
1st rack travel in: 16.30
Speed rpm : 1190...1210
2nd rack travel in: 10.95
Speed rpm : 1285...1315
3rd rack travel in: 1.40...8.10
Speed rpm : 1385...1415
4th rack travel in: 1550
Speed rpm : -

LOW IDLE 1
Control lever
position degrees: 6...14

Testing:
Speed rpm : 200
Minimum rack trave: 6.20
Speed rpm : 300
Rack travel in mm : 3.70...5.90
Rack travel in mm : 2.85
Speed rpm : 400
Speed rpm : 500
Maximum rack trave: 1.00

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 260
Rack travel mm : 13.90...14.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.00...12.20

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: ?
Speed rpm : 1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 190...240
1000 s: (-)

LOW IDLE

Speed rpm : 225
Del.quantity cm3/ : 11.0...13.0
1000 s: (-)

Remarks:

: MACK ENDT 475

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : WAU 1 a
 Edition : 14.02.1990
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 043
 Injection pump
 Pump designation : PE6P130/420LS67
 Governor
 Governor design. : RSV300..900P4/308DR

Customer-spec. information
 Customer : WAUKESHA

Engine : F-1197D

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 35...45

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 0 681 443 022

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 026

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.0...2.1
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 9.00

Del.quantity cm³/ : 20.7...21.4

100 s : (-)

Spread cm³ : 0.8

100 s : (-)

2nd speed rpm : 600
 Rack travel in mm : 12.00
 Del.quantity cm³/ : 28.2...28.9
 100 s : (-)
 3rd speed rpm : 200
 Rack travel in mm : 6.00
 Del.quantity cm³/ : 4.6...6.0
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 225.0...229.0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

1st rack travel in: 16.00

Speed rpm : 890...910

2nd rack travel in: 11.00

Speed rpm : 925...955

3rd rack travel in: 3.00...5.00

Speed rpm : 985...1015

4th rack travel in: 1100

Speed rpm : 0.0...1.00

LOW IDLE 1

Control lever

position degrees: 20...28

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.00

Testing:

Speed rpm : 100

Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.70...6.30
Rack travel in mm : 3.70
Speed rpm : 400
Speed rpm : 580
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 880
Rack travel in m: -
2nd speed rpm : 600
Rack travel in m: -
3rd speed rpm : 500
Rack travel in m: 0.10...0.30
4th speed rpm : 360
Rack travel in m: 0.40...0.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm3/ : 234.0...240.0
1000 s: (-)
Speed rpm : 500
Del.quantity cm3/ : 226.0...232.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: ?
Speed rpm : 920

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 589.0...591.0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 970
Del.quantity cm3/ : 28.0...38.0
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : WAU 1 a 2
Edition : 14.02.1990
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 876 045

Injection pump
Pump designation : PE6P130/420LS67
Governor
Governor design. : RSV300..900P4/308DR

Customer-spec. information
Customer : WAUKESHA

Engine : F-1197D

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 35...45

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 443 022

Opening
pressure, bar : 172...175

Test lines : 1 680 750 026

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.0...2.1
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 9.00

Del.quantity cm3/ : 20.7...21.4

100 s : (-)

Spread cm3 : 0.8

100 s : (-)

2nd speed rpm : 600
Rack travel in mm : 12.00
Del.quantity cm3/ : 28.2...28.9
100 s : (-)

3rd speed rpm : 200
Rack travel in mm : 6.00
Del.quantity cm3/ : 4.6...6.0
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3

Speed rpm : 800
Rack travel in mm : 0.30...1.40

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 900
Del.quantity : 225.0...229.0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:
1st rack travel in: 16.00
Speed rpm : 890...910
2nd rack travel in: 11.00
Speed rpm : 925...955
3rd rack travel in: 3.00...5.00
Speed rpm : 985...1015
4th rack travel in: 1100
Speed rpm : 0.0...1.00

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.00

Testing:
Speed rpm : 100

Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.70...6.30
Rack travel in mm : 3.70
Speed rpm : 400
Speed rpm : 580
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 880
Rack travel in m: -
2nd speed rpm : 600
Rack travel in m: -
3rd speed rpm : 500
Rack travel in m: 0.10...0.30
4th speed rpm : 360
Rack travel in m: 0.40...0.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm³/ : 234.0...240.0
1000 s: (-)
Speed rpm : 500
Del.quantity cm³/ : 226.0...232.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: ?
Speed rpm : 920

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 589.0...591.0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 970
Del.quantity cm³/ : 28.0...38.0
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : WAU 1 a 2
Edition : 14.02.1990
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 876 098

Injection pump
Pump designation : PE6P130A420LS67
Governor
Governor design. : RSV300...900P4/308DR

Customer-spec. information
Customer : WAUKESHA

Engine : F-1197 D

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 35...45

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 443 022

Opening
pressure, bar : 172...175

Test lines : 1 680 750 026

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.0...2.1
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 9.00

Del.quantity cm³/ : 20.7...21.4

100 s : (-)

Spread cm³ : 0.8

100 s : (-)

2nd speed rpm : 600
Rack travel in mm : 12.00
Del.quantity cm³/ : 28.3...30.1
100 s : (-)

3rd speed rpm : 200
Rack travel in mm : 6.00
Del.quantity cm³/ : 4.6...6.3
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.40

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 900
Del.quantity : 225.0...229.0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:
1st rack travel in: 16.00
Speed rpm : 890...910
2nd rack travel in: 11.00
Speed rpm : 925...955
3rd rack travel in: 3.00...5.00
Speed rpm : 985...1015
4th rack travel in: 1100
Speed rpm : 0.0...1.00

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.00

Testing:
Speed rpm : 100

Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.70...6.30
Rack travel in mm : 3.70
Speed rpm : 400
Speed rpm : 360
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 880
Rack travel in m: -
2nd speed rpm : 600
Rack travel in m: -
3rd speed rpm : 500
Rack travel in m: 0.10...0.30
4th speed rpm : 360
Rack travel in m: 0.40...0.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm3/ : 234.0...240.0
1000 s: (-)
Speed rpm : 500
Del.quantity cm3/ : 226.0...232.0
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: ?
Speed rpm : 920

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 589.0...591.0
1000 s: (-)

HIGH IDLE

1st version
Speed rpm : 970
Del.quantity cm3/ : 28.0...38.0
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 q 4
 Edition : 2.1.90
 Replaces : 5.8.88
 Test oil : ISO-4113
 Combination no. : 0 401 876 740
 Injection pump
 Pump designation : PE6P120A320LS3815-10
 EP type number : 0 411 826 735
 Governor
 Governor design. : RSV750...1150P1A820-
 4
 Governor no. : 0 421 833 179

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM421A

1st version kW : 184.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1180

Rack travel in mm : 11.00...11.10

Del.quantity cm3/ : 16.3...16.5

100 s: (16.0...16.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 750.0

Rack travel in mm : 3.3...3.6

Del.quantity cm3/ : 2.0...2.6

100 s: (1.7...2.9)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1180

Del.quantity : 163.0...165.0

1000 : (160.0...168.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control Lever
position degrees: 56...64

Testing:

1st rack travel in: 10.00
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1235...1255
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever
position degrees: 32...40
Setting point w/out bumper spring
Speed rpm : 750
Rack travel in mm : 3.4
Speed rpm : 750
Rack travel in mm : 3.30...3.50
Rack travel in mm : 2.00
Speed rpm : 755...815

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve — 1st version

1st speed rpm : 1180
Rack travel in m: 11.00...11.10
2nd speed rpm : 975
Rack travel in m: 11.40...11.60
3rd speed rpm : 600
Rack travel in m: 11.80...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 950
Del.quantity cm³/ : 174.0...178.0
1000 s: (171.0...181.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:
Engine-speed difference between 1 mm
regulated and control-rod travel 4 mm =
25...35 1/min.

When adjusting and checking, adjust
speed regulation to 1210...1220 l/min.
Afterwards, readjust speed regulation
to 1160...1170 l/min.

Test specifications apply to
injection-pump assemblies on engines
up to end number 421...123 021
APPLICATION

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 q 8
Edition : 2.1.90
Replaces : 18.12.87
Test oil : ISO-4113

Combination no. : 0 401 876 740A

Injection pump
Pump designation : PE6P120A320LS3815-10
EP type number : 0 411 826 735
Governor
Governor design. : RSV750...1150P1A820-4
Governor no. : 0 421 833 179

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM421A

1st version kW : 184.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1180

Rack travel in mm : 10.40...10.50

Del.quantity cm3/ : 15.3...15.5

100 s: (15.0...15.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 750.0

Rack travel in mm : 3.3...3.5

Del.quantity cm3/ : 1.8...2.4

100 s: (1.5...2.7)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1180

Del.quantity : 153.0...155.0

1000 : (150.0...158.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control Lever
position degrees: 56...64

Testing:

1st rack travel in: 9.40
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1240...1260
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever
position degrees: 32...40
Setting point w/out bumper spring
Speed rpm : 750
Rack travel in mm : 3.4
Speed rpm : 750
Rack travel in mm : 3.30...3.50
Rack travel in mm : 2.00
Speed rpm : 755...815

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1180
Rack travel in m: 10.40...10.50
2nd speed rpm : 975
Rack travel in m: 11.00...11.20
3rd speed rpm : 600
Rack travel in m: 11.30...11.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 950
Del.quantity cm³/ : 164.0...168.0
1000 s: (161.0...171.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:
Engine-speed difference between 1 mm
regulated and control-rod travel 4 mm =
25...35 1/min.

When adjusting and checking, adjust
speed regulation to 1210...1220 l/min.
Afterwards, readjust speed regulation
to 1160...1170 l/min.

Test specifications apply to
injection-pump assemblies on engines
up to end number 421...123 021
APPLICATION

Forage harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 q 9
Edition : 2.1.90
Replaces : 18.12.87
Test oil : ISO-4113

Combination no. : 0 401 876 740B

Injection pump
Pump designation : PE6P120A320LS3815-10
EP type number : 0 411 826 735
Governor
Governor design. : RSV750...1150P1A820-4
Governor no. : 0 421 833 179

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM421A

1st version kW : 184.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1180

Rack travel in mm : 10.70...10.80

Del.quantity cm3/ : 15.7...15.9

100 s: (15.4...16.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 750.0

Rack travel in mm : 3.3...3.5

Del.quantity cm3/ : 1.8...2.4

100 s: (1.5...2.7)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1180

Del.quantity : 157.0...159.0

1000 : (154.0...162.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 56...64

Testing:

1st rack travel in: 9.70
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1240...1260
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 32...40
Setting point w/out bumper spring
Speed rpm : 750
Rack travel in mm : 3.4
Speed rpm : 750
Rack travel in mm : 3.30...3.50
Rack travel in mm : 2.00
Speed rpm : 755...815

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1180
Rack travel in m: 10.70...10.80
2nd speed rpm : 950
Rack travel in m: 11.20...11.40
3rd speed rpm : 1075
Rack travel in m: 11.00...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 950
Del.quantity cm³/ : 168.0...172.0
1000 s: (165.0...175.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

Engine-speed difference between 1 mm regulated and control-rod travel 4 mm = 25...35 1/min.

When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 l/min.

Test specifications apply to injection-pump assemblies on engines as of end number 421...123 022
APPLICATION

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 q10
 Edition : 2.1.90
 Replaces : 18.12.87
 Test oil : ISO-4113
 Combination no. : 0 401 876 740C
 Injection pump
 Pump designation : PE6P120A32QLS3815-10
 EP type number : 0 411 826 735
 Governor
 Governor design. : RSV750...1150P1A820-
 4
 Governor no. : 0 421 833 179

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM421A

1st version kW : 184.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm - : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1180

Rack travel in mm : 10.10...10.20

Del.quantity cm3/ : 14.8...15.0

100 s: (14.5...15.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 750.0

Rack travel in mm : 3.3...3.5

Del.quantity cm3/ : 1.8...2.4

100 s: (1.5...2.7)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1180

Del.quantity : 148.0...150.0

1000 : (145.0...153.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 56...64

Testing:

1st rack travel in: 9.10
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1240...1260
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 32...40
Setting point w/out bumper spring
Speed rpm : 750
Rack travel in mm : 3.4
Speed rpm : 750
Rack travel in mm : 3.30...3.50
Rack travel in mm : 2.00
Speed rpm : 755...815

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1180
Rack travel in m: 10.10...10.20
2nd speed rpm : 950
Rack travel in m: 10.50...10.70
3rd speed rpm : 1075
Rack travel in m: 10.30...10.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 950
Del.quantity cm³/ : 159.0...163.0
1000 s: (156.0...166.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

Engine-speed difference between 1 mm regulated and control-rod travel 4 mm = 25...35 1/min.

When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 l/min.

Test specifications apply to injection-pump assemblies on engines as of end number 421...123 022
APPLICATION

Forage harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 q 7
Edition : 2.1.90
Replaces : 11.12.87
Test oil : ISO-4113

Combination no. : 0 401 876 753

Injection pump
Pump designation : PE6P120A320LS3815-10
EP type number : 0 411 826 735
Governor
Governor design. : RSV750...1150P1A820-6
Governor no. : 0 421 833 227

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM421A

1st version kW : 184.0
Rated speed : 2300
2nd version kW : 184.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness : 6.00x1.50x1000
x Length mm

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
(3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1180

Rack travel in mm : 10.70...10.80

Del.quantity cm³/ : 15.7...15.9

100 s: (15.4...16.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 750.0
Rack travel in mm : 3.4...3.6
Del.quantity cm³/ : 1.8...2.4
100 s: (1.5...2.7)
Spread cm³ : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1180
Del.quantity : 157.0...159.0
1000 : (154.0...162.0)
Spread cm³ : 5.00
1000 : (9.00)
2nd version

Speed rpm : 1180
Del.quantity cm³/ : 148.0...150.0
1000 s: (145.0...153.0)
Spread cm³ : 5.00
1000 s: (9.00)

RATED SPEED

1st version
Control lever
position degrees: 56...64

Testing:

1st rack travel in: 9.70
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1240...1260
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 32...40
Setting point w/out bumper spring
Speed rpm : 750
Rack travel in mm : 3.4
Speed rpm : 750
Rack travel in mm : 3.30...3.50
Rack travel in mm : 2.00
Speed rpm : 755...815

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1180
Rack travel in m: 10.70...10.80
2nd speed rpm : 950
Rack travel in m: 11.20...11.40
3rd speed rpm : 1075
Rack travel in m: 11.00...11.20

START CUT-OUT

Speed 1/min : 5 (0)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 950
Del.quantity cm³/ : 168.0...172.0
1000 s: (165.0...175.0)
Spread cm³ : 8.00
1000 s: (12.0)

2nd version

Speed rpm : 975

Del.quantity cm³/ : 159.0...163.0
1000 s: (156.0...166.0)
Spread cm³ : 9.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (146.0...174.0)

Remarks:

:
Engine-speed difference between 1 mm
regulated and control-rod travel 4 mm =
25...35 1/min.

When adjusting and checking, adjust
speed regulation to 1210...1220 l/min.
Afterwards, readjust speed regulation
to 1160...1170 l/min.

Test specifications apply to
injection-pump assemblies on engines
as of end number 421...123 022
APPLICATION

Version 1 = Combine harvester
Version 2 = Forage harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 q11
 Edition : 2.1.90
 Replaces : 18.12.87
 Test oil : ISO-4113
 Combination no. : 0 401 876 753A
 Injection pump
 Pump designation : PE6P120A320LS3815-10
 EP type number : 0 411 826 735
 Governor
 Governor design. : RSV750...1150P1A820-6
 Governor no. : 0 421 833 227

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM421A

1st version kW : 184.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1180

Rack travel in mm : 10.10...10.20

Del.quantity cm3/ : 14.8...15.0

100 s: (14.5...15.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 750.0

Rack travel in mm : 3.4...3.6

Del.quantity cm3/ : 1.8...2.4

100 s: (1.5...2.7)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1180

Del.quantity : 148.0...150.0

1000 : (145.0...153.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 56...64

Testing:

1st rack travel in: 9.10
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1240...1260
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 32...40
Setting point w/out bumper spring
Speed rpm : 750
Rack travel in mm : 3.4
Speed rpm : 750
Rack travel in mm : 3.30...3.50
Rack travel in mm : 2.00
Speed rpm : 755...815

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1180
Rack travel in m: 10.10...10.20
2nd speed rpm : 950
Rack travel in m: 10.50...10.70
3rd speed rpm : 1075
Rack travel in m: 10.30...10.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 950
Del.quantity cm³/ : 159.0...163.0
1000 s: (156.0...166.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (146.0...174.0)

Remarks:

Engine-speed difference between 1 mm regulated and control-rod travel 4 mm = 25...35 1/min.

When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 l/min.

Test specifications apply to injection-pump assemblies on engines as of end number 421...123 022
APPLICATION

Forage harvester

Note remarks

Combination no. : 0 401 876 753B

1st version

Control lever
position degrees: 56...64

Testing:

1st rack travel in: 10.20
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1235...1255
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 32...40
Setting point w/out bumper spring
Speed rpm : 750
Rack travel in mm : 3.4
Speed rpm : 750
Rack travel in mm : 3.30...3.50
Rack travel in mm : 2.00
Speed rpm : 755...815

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1180
Rack travel in m: 11.20...11.30
2nd speed rpm : 950
Rack travel in m: 11.70...11.80
3rd speed rpm : 1075
Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 950
Del.quantity cm³/ : 174.0...178.0
1000 s: (171.0...181.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (146.0...174.0)

Remarks:

Engine-speed difference between 1 mm regulated and control-rod travel 4 mm = 25...35 1/min.

When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 l/min.

Test specifications apply to injection-pump assemblies on engines up to end number 421...123 021
APPLICATION

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 q13
Edition : 2.1.90
Replaces : 18.12.87
Test oil : ISO-4113

Combination no. : 0 401 876 753C

Injection pump
Pump designation : PE6P120A320LS3815-10
EP type number : 0 411 826 735
Governor
Governor design. : RSV750...1150P1A820-6
Governor no. : 0 421 833 227

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM421A

1st version kW : 184.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
(3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1180

Rack travel in mm : 10.40...10.50

Del.quantity cm³/ : 15.3...15.5

100 s: (15.0...15.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 750.0
Rack travel in mm : 3.4...3.6
Del.quantity cm³/ : 1.8...2.4
100 s: (1.5...2.7)

Spread cm³ : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1180
Del.quantity : 153.0...155.0
1000 : (150.0...158.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 56...64

Testing:

1st rack travel in: 9.40
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1240...1260
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 32...40
Setting point w/out bumper spring
Speed rpm : 750
Rack travel in mm : 3.4
Speed rpm : 750
Rack travel in mm : 3.30...3.50
Rack travel in mm : 2.00
Speed rpm : 755...815

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1180
Rack travel in m: 10.40...10.50
2nd speed rpm : 950
Rack travel in m: 11.00...11.20
3rd speed rpm : 1075
Rack travel in m: 10.60...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 950
Del.quantity cm³/ : 164.0...168.0
1000 s: (161.0...171.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (146.0...174.0)

Remarks:

Engine-speed difference between 1 mm regulated and control-rod travel 4 mm = 25...35 1/min.

When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 l/min.

Test specifications apply to injection-pump assemblies on engines up to end number 421...123 021
APPLICATION

Forage harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 9,4 a 5
Edition : 26.01.1990
Replaces : -
Test oil : ISO 4113

Combination no. : 0 402 058 044

Injection pump
Pump designation : PES8P100A921/5RS286
Governor
Governor design. : RQV300...1300PA444KR

Customer-spec. information
Customer : IHC

Engine : DVT 800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 35...45

Overflow valve : 1 417 413 040

Inlet press., bar : 2.75

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 204...207

Test lines : 9 681 230 713

Outside diameter
x Wall thickness
x Length mm : 6.35X2.12X1016

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.8...2.9
: (-)
Rack travel in mm : 10.5
Firing order : 1-8-4-2-7-3-6-5

Phasing : 45-90-135-180-225-

Tolerance + - ° : 270-315
: 0.5 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.2

Del.quantity cm³/ : 11.4...11.6

100 s: (-)

Spread cm³ : 0.3

100 s: (-)

2nd speed rpm : 300

Rack travel in mm : 5.0

Del.quantity cm³/ : 1.7...2.1

100 s: (-)

Spread cm³ : 0.3

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1320

Rack travel in mm : 15.0...17.5

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 800

Del.quantity : 114.0...116.0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 59.5...63.5

Testing:

1st rack travel in: 9.2

Speed rpm : 1340...1350

2nd rack travel in: 4.0

Speed rpm : 1420...1450

3rd rack travel in: 0.0...1.0

Speed rpm : 1640

LOW IDLE 1

Control lever

position degrees: 8.5...13.5

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 5.1

Speed rpm : 300
Rack travel in mm : 5.00...5.20
Rack travel in mm : 2.00
Speed rpm : 425...485

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1300
Rack travel in m: 10.15...10.25
2nd speed rpm : 900
Rack travel in m: 10.45...10.55
3rd speed rpm : 700
Rack travel in m: 10.05...10.15

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 800
Pressure hPa : 215
Rack travel mm : *

Measurement

Speed 1/min : 800

1st pressure hPa : 395

Rack travel in m: **

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

Speed rpm : 900

Del.quantity cm3/ : 118.0...120.0
1000 s: (-)

Aneroid pressure h: -

Speed rpm : 800

Del.quantity cm3/ : 84.0...88.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.2

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 184.0...224.0
1000 s: (-)

HIGH IDLE

J20

1st version

Aneroid pressure h: -

Speed rpm : -

Del.quantity cm3/ : -
1000 s: (-)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 17.0...21.0

Remarks:

Perform pump setting only with IH hose
with 1.57 mm diameter restriction.

* Start of LDA (manifold-pressure
compensator) movement

** Ende der LDA-Bewegung

Start-of-delivery mark is made at
start of delivery of cylinder 1 with
idle control-rod travel

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,7 k 1
Edition : 14.02.1990
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 076 007

Injection pump
Pump designation : PES6P100A72ORS1010
Governor
Governor design. : RSV400...900P7/379R

Customer-spec. information
Customer : JOHN DEERE

Engine : 6531 A

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 35...45

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 705

Outside diameter
x Wall thickness
x Length mm : 6.00X3.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.4...2.5
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.00

Del.quantity cm3/ : 12.8...13.4

100 s : (-)

Spread cm3 : 0.5

100 s : (-)

2nd speed rpm : 600
Rack travel in mm : 15.00
Del.quantity cm3/ : 17.6...19.0
100 s : (-)

3rd speed rpm : 200
Rack travel in mm : 9.00
Del.quantity cm3/ : 4.2...5.2

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 890
Del.quantity : 142.0...144.0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 54...62

Testing:
1st rack travel in: 16.00
Speed rpm : 890...910
2nd rack travel in: 11.80
Speed rpm : 915...945
3rd rack travel in: 5.60
Speed rpm : 925...955
4th rack travel in: 1050
Speed rpm : 0.0...1.00

LOW IDLE 1

Control lever
position degrees: 26...34
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 7.10

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 6.80...7.40
Rack travel in mm : 2.75

Speed rpm : 500
Speed rpm : 630
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 880

Rack travel in m: -

2nd speed rpm : 430

Rack travel in m: 0.60...1.20

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: ?

Speed rpm : 910...915

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 150...190

1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 940

Del.quantity cm3/ : 16.0...25.0

1000 s: (-)

LOW IDLE

Speed rpm : 400

Del.quantity cm3/ : 20.0...27.0

1000 s: (-)

Remarks:

: JOHN DEERE # AR64215

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 L 3
Edition : 26.01.1990
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 076 031

Injection pump
Pump designation : PES6P110A72ORS305
Governor
Governor design. : RSV400...1050P7/420D
R

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466 A

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.78...2.85
: (2.70...2.90)
Rack travel in mm : 9.00...12.00
Firing order : 1-5-3-6-2-4-

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1040
Rack travel in mm : 11.7
Del.quantity cm3/ : 15.7...15.9
100 s : (-)
Spread cm3 : 0.4
100 s : (-)

2nd speed rpm : 400
Rack travel in mm : 6.0
Del.quantity cm3/ : 1.9...2.5
100 s : (-)
Spread cm3 : 0.4
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1040
Del.quantity : 157.0...159.0
1000 : (155.0...161.0)

RATED SPEED

1st version
Control lever
position degrees: 56...64

Testing:
1st rack travel in: 11.7
Speed rpm : 1030
2nd rack travel in: 10.7
Speed rpm : 1070
3rd rack travel in: 4.0...6.0
Speed rpm : 1110

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.3

Testing:

Speed rpm : 100
Minimum rack trave: 19.0
Speed rpm : 400
Rack travel in mm : 6.3
Rack travel in mm : 2.0
Speed rpm : 450...500

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 650
Rack travel in m: 0.6

START CUT-OUT

Speed 1/min : 350...450

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 169.0...173.0
1000 s: (167.0...175.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.7
Speed rpm : 1065...1075

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1100
Del.quantity cm³/ : 17.0...27.0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Del.quantity cm³/ : 19.0...25.0
1000 s: (-)

Remarks:

: JOHN DEERE # AR79943
Start-of-delivery mark = 13.25° after
start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10.1 d6
Edition : 26.01.1990
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 076 042
Injection pump
Pump designation : PES6P110A720RS296
Governor
Governor design. : RSV400...1050P7/438D
R

Customer-spec. information
Customer : JOHN DEERE

Engine : 6619 T

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 457 413 010

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6,00X1,50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.75...2.85
: (2.70...2.90)
Rack travel in mm : 9.0...12.0
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.5 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1040
Rack travel in mm : 11.0
Del.quantity cm3/ : 14.7...14.9
100 s: (-)
Spread cm3 : 0.4
100 s: (-)
2nd speed rpm : 400
Rack travel in mm : 6.1
Del.quantity cm3/ : 1.9...2.5
100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1040
Del.quantity : 147.0...149.0
1000 : (145.0...151.0)

RATED SPEED

1st version
Control lever
position degrees: 51...59

Testing:
1st rack travel in: 10.0
Speed rpm : 1060...1080
2nd rack travel in: 4.1
Speed rpm : 1085...1115

LOW IDLE 1

Control lever
position degrees: 24...32

Testing:
Speed rpm : 100
Minimum rack trave: 19.0
Speed rpm : 370
Rack travel in mm : 9.9...10.1
Rack travel in mm : 6.1
Speed rpm : 400

Speed rpm : 440
Maximum rack trave: 2.0

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 450
Rack travel in m: 11.7...12.3

START CUT-OUT

Speed 1/min : 400...750

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1040
Del.quantity cm3/ : 147.0...149.0
1000 s: (145.0...151.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.0
Speed rpm : 1060...1080

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 190.0...210.0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1100
Del.quantity cm3/ : 17.0...27.0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Del.quantity cm3/ : 19.0...25.0
1000 s: (-)

Remarks:

: JOHN DEERE # AR81969

Start-of-delivery mark at control-rod
travel 10.5 mm and 15° after start of
delivery.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 16,0 c1
Edition : 16.02.90
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 646 877

Injection pump
Pump designation : PE6P130A72ORS7122-1
EP type number : 0 412 636 812
Governor
Governor design. : RQV225...930PA922
Governor no. : 0 421 813 763

Customer-spec. information
Customer : VOLVO-TRUCK

Engine : TD162 FL,FJ,

1st version kW : 331.0
Rated speed : 1860

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
: (3.55...3.75)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.50...13.60

Del.quantity cm3/ : 30.0...30.3

100 s: (29.7...30.7)

Spread cm3 : 0.6

100 s: (1.0)

2nd speed rpm : 250.0
Rack travel in mm : 5.0...5.2
Del.quantity cm3/ : 2.5...3.0
100 s: (2.3...3.3)
Spread cm3 : 0.5
100 s: (0.8)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.40
2nd speed rpm : 350
travel mm : 2.10...2.70
3rd speed rpm : 700
travel mm : 5.60...6.20
4th speed rpm : 975
travel mm : 8.20...8.40
5th speed rpm : 1090
travel mm : 9.50...9.90

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1100
Rack travel in mm : 7.70...10.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Aneroid pressure h: 700

Del.quantity : 300.5...303.5
1000 : (297.0...307.0)
Spread cm3 : 6.00
1000 : (10.00)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:

1st rack travel in: 12.50
Speed rpm : 970...980
2nd rack travel in: 4.00
Speed rpm : 1090...1120
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 6...14

Testing:

Speed rpm : 100
Minimum rack trave: 6.50
Speed rpm : 250
Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

Speed rpm : 250...450

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 13.50...13.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.50...9.70
2nd pressure hPa : 110
Rack travel in m: 9.80...9.90
3rd pressure hPa : 720
Rack travel in m: 13.10...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 180.0...183.0
1000 s: (176.5...183.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.50
Speed rpm : 970...980

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 125.0...145.0
1000 s: (121.0...149.0)
Rack travel in mm : 9.50...9.70

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.00...5.20
Del.quantity cm3/ : 25.5...30.5
1000 s: (23.0...33.0)
Spread cm3 : 5.00
1000 s: (8.00)

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PER 12,2 f
Edition : 02.02.90
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 746 882
Injection pump
Pump designation : PES6P120A320RS7156-1
EP type number : 0 412 726 830
Governor
Governor design. : RQV300...1050PA941
Governor no. : 0 421 813 834

Customer-spec. information
Customer : PERKINS

Engine : 2006 TW-H

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60
: (4.45...4.65)
Rack travel in mm : 9.00...12.00

K01

Firing order : 1- 4- 2- 6- 3- 5

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 13.60...13.70

Del.quantity cm³/ : ?

100 s : (?)

2nd speed rpm : 250.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : ?

100 s : (?)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.10...1.50

2nd speed rpm : 370
travel mm : 3.30...3.90

3rd speed rpm : 700
travel mm : 4.70...5.30

4th speed rpm : 1110
travel mm : 5.40...5.60

5th speed rpm : 1250
travel mm : 8.60...9.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1220

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 1200

Del.quantity : ?

1000 : (?)

RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

1st rack travel in: 12.60
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18

Testing:

Speed rpm : 200
Minimum rack travel: 9.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

Speed rpm : 300...380

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.60...13.70

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 11.00...11.20

2nd pressure hPa : 600

Rack travel in m: 13.00...13.10

START CUT-OUT

Speed 1/min : 220 (240)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.60

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Full-load delivery not known. Set
according to engine test report.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 17
Edition : 12.02.90
Replaces : 30.09.88
Test oil : ISO-4113

Combination no. : 0 403 446 150

Injection pump
Pump designation : PES6MW100/720RS1120
EP type number : 0 413 406 112
Governor
Governor design. : RQV300...1300MW59
Governor no. : 0 420 083 077

Customer-spec. information
Customer : DB

Engine : OM366LA

1st version kW : 141.7
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00

K03

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.10...12.20

Del.quantity cm3/ : 8.6...8.8

100 s: (8.4...9.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.1...6.2

Del.quantity cm3/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.50...9.90

2nd speed rpm : 1350

travel mm : 8.50...8.70

3rd speed rpm : 450

travel mm : 2.40...3.00

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 86.0...88.0

1000 : (84.0...90.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:
1st rack travel in: 11.10
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1450...1480
4th rack travel in: 1530
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.10...6.20

CONSTANT REGULATION
Speed rpm : 320...550

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 310
Rack travel mm : 11.80...11.90

Measurement
Speed 1/min : 500

1st pressure hPa : 700
Rack travel in m: 12.10...12.20
2nd pressure hPa : -
Rack travel in m: 11.00...11.10
3rd pressure hPa : 280
Rack travel in m: 11.20...11.50

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 750
Del.quantity cm3/ : 73.0...76.0
1000 s: (70.5...78.5)

Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 47.0...49.0
1000 s: (45.0...51.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.10
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.10...6.20
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 47
Edition : 12.02.90
Replaces : 13.06.88
Test oil : ISO-4113

Combination no. : 0 403 446 156

Injection pump
Pump designation : PES6MW100/720RS1120
EP type number : 0 413 406 112
Governor
Governor design. : RQV300...1300MW59
Governor no. : 0 420 083 077

Customer-spec. information
Customer : DB

Engine : OM366LA

1st version kW : 141.7
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00

K05

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.10...12.20

Del.quantity cm³/ : 8.6...8.8

100 s: (8.4...9.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.2

Del.quantity cm³/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.50...9.90

2nd speed rpm : 1350

travel mm : 8.50...8.70

3rd speed rpm : 450

travel mm : 2.40...3.00

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 86.0...88.0

1000 : (84.0...90.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:
1st rack travel in: 11.10
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1440...1470
4th rack travel in: 1530
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION
Speed rpm : 320...550

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 310
Rack travel mm : 11.80...11.90

Measurement
Speed 1/min : 500

1st pressure hPa : 700
Rack travel in m: 12.10...12.20
Rack travel in m: 11.00...11.10
3rd pressure hPa : 280
Rack travel in m: 11.20...11.50

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 750
Del.quantity cm3/ : 73.0...76.0
1000 s: (70.5...78.5)

Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 47.0...49.0
1000 s: (45.0...51.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.10
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.00...6.20
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB vorl.
Edition : 07.02.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 446 191

Injection pump
Pump designation : PES6MW100/720RS1144
EP type number : 0 413 406 138
Governor
Governor design. : RQV300...1200MW48-5
Governor no. : 0 420 083 140

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM366A

1st version kW : 116.0
Rated speed : 2400
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200
Rack travel in mm : 10.80...10.90
Del. quantity cm³/ : 7.7...7.9
100 s: (7.5...8.1)
Spread cm³ : 0.3
100 s: (0.6)

2nd speed rpm : 300.0
Rack travel in mm : 8.0...8.1
Del. quantity cm³/ : 1.0...1.4
100 s: (0.9...1.5)
Spread cm³ : 0.3
100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250
travel mm : 7.30...7.50
2nd speed rpm : 1380
travel mm : 8.50...8.90
3rd speed rpm : 500
travel mm : 2.70...3.30
4th speed rpm : 300
travel mm : 1.20...1.70

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1330
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1200
Del. quantity : 77.0...79.0
1000 : (75.0...81.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 46...54

Testing:

1st rack travel in: 9.80
Speed rpm : 1250...1260
2nd rack travel in: 4.00
Speed rpm : 1350...1380
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 16...24

Testing:

Speed rpm : 100
Minimum rack travel: 9.80
Speed rpm : 300
Rack travel in mm : 8.00...8.10

CONSTANT REGULATION

Speed rpm : 330...500

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 10.80...10.90
2nd speed rpm : 700
Rack travel in m: 11.10...11.20
3rd speed rpm : 800
Rack travel in m: 10.90...11.10

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm³/ : 62.0...64.0
1000 s: (60.0...66.0)
Spread cm³ : 5.00
1000 s: (7.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1250...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 80.0...90.0
1000 s: (77.0...93.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.00...8.10
Del.quantity cm³/ : 10.0...14.0
1000 s: (9.0...15.0)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 82
Edition : 05.03.90
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 446 225

Injection pump
Pump designation : PES6MW100/720RS1144
EP type number : 0 413 406 138
Governor
Governor design. : RGV300...1400MW48-11
Governor no. : 0 420 083 190

Customer-spec. information
Customer : MB-NFZ

Engine : OM366A

1st version kw : 125.0
Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00

K09

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.90...11.00

Del.quantity cm3/ : 7.5...7.7

100 s: (7.3...7.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...8.3

Del.quantity cm3/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1550

travel mm : 9.20...9.60

2nd speed rpm : 1450

travel mm : 8.30...8.50

3rd speed rpm : 550

travel mm : 2.80...3.40

4th speed rpm : 300

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1470

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 48...56

Testing:

1st rack travel in: 9.90
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1530...1560
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.0

Testing:

Speed rpm : 100
Minimum rack trave: 9.50
Speed rpm : 300
Rack travel in mm : 7.80...8.30

TORQUE CONTROL

Dimension a mm : 0.60
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.90...11.00
2nd speed rpm : 800
Rack travel in m: 11.50...11.70
3rd speed rpm : 1000
Rack travel in m: 11.10...11.40

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm3/ : 67.5...70.5
1000 s: (65.0...73.0)
Spread cm3 : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 80.0...90.0
1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...8.30
Del.quantity cm3/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 71
 Edition : 16.02.90
 Replaces : 13.10.89
 Test oil : ISO-4113
 Combination no. : 0 403 446 226
 Injection pump
 Pump designation : PES6MW100/72ORS1131-
 1
 EP type number : 0 413 406 165
 Governor
 Governor design. : RQ300/1300MW105
 Governor no. : 0 420 082 039

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366LA

1st version kW : 177.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 14.60...14.70

Del.quantity cm3/ : 12.0...12.2

100 s: (11.8...12.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del.quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.40...9.80

2nd speed rpm : 1360

travel mm : 7.20...7.40

3rd speed rpm : 550

travel mm : 4.20...4.80

4th speed rpm : 300

travel mm : 1.30...1.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 1200

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del.quantity : 120.0...122.0

1000 : (118.0...124.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control Lever
position degrees: 38...46

Setting point:
Speed rpm : 1200
Rack travel in mm : 15.5

Testing:
1st rack travel in: 13.60
Speed rpm : 1345...1360
2nd rack travel in: 4.00
Speed rpm : 1450...1480
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...16
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.4

Testing:
Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 300
Rack travel in mm : 6.30...6.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.60...10.70

Measurement
Speed 1/min : 500

1st pressure hPa : 200
Rack travel in m: 10.90...11.10
2nd pressure hPa : 500
Rack travel in m: 13.50...13.70
3rd pressure hPa : 1000
Rack travel in m: 14.60...14.70

START CUT-OUT

Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 750

Del.quantity cm3/ : 111.0...115.0
1000 s: (109.0...117.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 41.0...43.0
1000 s: (39.0...45.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.60
Speed rpm : 1345...1360

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 81
 Edition : 05.03.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 231
 Injection pump
 Pump designation : PES6MW100/72ORS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RQV300...1400MW48-8
 Governor no. : 0 420 083 175

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 125.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 715 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400
 Rack travel in mm : 10.90...11.00

Del.quantity cm3/ : 7.5...7.7
 100 s: (7.3...7.9)

Spread cm3 : 0.3
 100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 7.8...8.3
 Del.quantity cm3/ : 0.9...1.3
 100 s: (0.6...1.5)
 Spread cm3 : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1550
 travel mm : 9.20...9.60
 2nd speed rpm : 1450
 travel mm : 8.30...8.50
 3rd speed rpm : 550
 travel mm : 2.80...3.40
 4th speed rpm : 300
 travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1470
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1400
 Del.quantity : 75.0...77.0
 1000 : (73.0...79.0)
 Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 49...57

Testing:

1st rack travel in: 9.90
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1535...1565
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.0

Testing:

Speed rpm : 100
Minimum rack travel: 9.50
Speed rpm : 300
Rack travel in mm : 7.80...8.30

TORQUE CONTROL

Dimension a mm : 1.50
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.90...11.00
2nd speed rpm : 750
Rack travel in m: 12.10...12.30
3rd speed rpm : 950
Rack travel in m: 11.80...12.10
4th speed rpm : 1200
Rack travel in m: 11.00...11.30

START CUT-OUT

Speed 1/min : 200 (230)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 74.5...77.5
1000 s: (72.0...80.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 80.0...90.0
1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...8.30
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 80
 Edition : 05.03.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 232
 Injection pump
 Pump designation : PES6MW100/720RS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RQV300...1400MW48-11
 Governor no. : 0 420 083 190

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366A

1st version kW : 125.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness : 6.00X1.50X600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00

K15

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ : 7.5...7.7

100 s: (7.3...7.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...8.3

Del.quantity cm³/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1550

travel mm : 9.20...9.60

2nd speed rpm : 1450

travel mm : 8.30...8.50

3rd speed rpm : 550

travel mm : 2.80...3.40

4th speed rpm : 300

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1470

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 48...56

Testing:
1st rack travel in: 9.90
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1530...1560
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.0

Testing:
Speed rpm : 100
Minimum rack travel: 9.50
Speed rpm : 300
Rack travel in mm : 7.80...8.30

TORQUE CONTROL
Dimension a mm : 0.60
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.90...11.00
2nd speed rpm : 800
Rack travel in m: 11.50...11.70
3rd speed rpm : 1000
Rack travel in m: 11.10...11.40

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 800
Del.quantity cm3/ : 67.5...70.5
1000 s: (65.0...73.0)
Spread cm3 : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 80.0...90.0
1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...8.30
Del.quantity cm3/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 S 4
Edition : 01.02.90
Replaces : 18.08.89
Test oil : ISO-4113

Combination no. : 0 403 446 233

Injection pump
Pump designation : PES6MW100/320RS1171
EP type number : 0 413 406 156
Governor
Governor design. : RQV300...1400MW97-1
Governor no. : 0 420 083 195

Customer-spec. information
Customer : RVI

Engine : MIDS060212C

1st version kw : 97.0
Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 033

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00

K17

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.50...9.60

Del.quantity cm³/ : 7.5...7.7

100 s: (7.3...7.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.50...5.70

Del.quantity cm³/ : 1.4...1.8

100 s: (1.1...2.0)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1570

travel mm : 9.20...9.60

2nd speed rpm : 1450

travel mm : 8.30...8.50

3rd speed rpm : 500

travel mm : 2.80...3.40

4th speed rpm : 300

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control Lever
position degrees: 62...70

Testing:

1st rack travel in: 8.50
Speed rpm : 1460...1470
2nd rack travel in: 4.00
Speed rpm : 1540...1570
4th rack travel in: 1700
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 3.9

Testing:
Speed rpm : 200
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 5.50...5.70

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 900
Del.quantity cm3/ : 66.5...69.5
1000 s: (64.0...72.0)
Spread cm3 : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.50
Speed rpm : 1460...1470

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 90.0...110.0
1000 s: (87.0...113.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.50...5.70
Del.quantity cm3/ : 14.0...18.0
1000 s: (11.5...20.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 S 3
Edition : 01.02.90
Replaces : 18.08.89
Test oil : ISO-4113

Combination no. : 0 403 446 235

Injection pump
Pump designation : PES6MW100/320RS1171
EP type number : 0 413 406 156
Governor
Governor design. : RQV300...1300MW80-5
Governor no. : 0 420 083 197

Customer-spec. information
Customer : RVI

Engine : MIDS 060212B

1st version kW : 113.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 033

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00

K19

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.80...10.90

Del.quantity cm³/ : 8.6...8.8

100 s: (8.4...9.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.40...5.60

Del.quantity cm³/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1500

travel mm : 8.70...9.10

2nd speed rpm : 1350

travel mm : 7.60...7.80

3rd speed rpm : 500

travel mm : 2.80...3.40

4th speed rpm : 300

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 86.0...88.0

1000 : (84.0...90.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 9.80

Speed rpm : 1370...1380
2nd rack travel in: 4.00
Speed rpm : 1485...1515
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 7.00
Speed rpm : 300
Rack travel in mm : 5.40...5.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.80...8.90

Measurement

Speed 1/min : 500

1st pressure hPa : 100
Rack travel in m: 9.30...9.40
2nd pressure hPa : 200
Rack travel in m: 10.20...10.50
3rd pressure hPa : 700
Rack travel in m: 10.80...10.90

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 900
Del.quantity cm³/ : 81.0...84.0
1000 s: (78.5...86.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 43.0...45.0
1000 s: (41.0...47.0)

BREAKAWAY

K20

1st version

1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1370...1380

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 90.0...110.0
1000 s: (87.0...113.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Set start-of-delivery sensor at pre-stroke to 3.50...3.60 mm for cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 83
Edition : 16.02.90
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 446 246

Injection pump
Pump designation : PES6MW100/72ORS1144
EP type number : 0 413 406 138
Governor
Governor design. : RQV300...1300MW50-6
Governor no. : 0 420 083 209

Customer-spec. information
Customer : MB-NFZ

Engine : OM366A

1st version kW : 125.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.90...11.00

Del.quantity cm3/ : 7.7...7.9

100 s: (7.5...8.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.0...8.2

Del.quantity cm3/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1430

travel mm : 9.30...9.70

2nd speed rpm : 1340

travel mm : 8.50...8.70

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1300

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 800

Del.quantity : 77.0...79.0

1000 : (75.0...81.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 50...58

Testing:
1st rack travel in: 9.90
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1425...1455
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.1

Testing:
Speed rpm : 100
Minimum rack travel: 9.20
Speed rpm : 300
Rack travel in mm : 8.00...8.20

TORQUE CONTROL
Dimension a mm : 1.20
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.90...11.00
2nd speed rpm : 800
Rack travel in m: 11.90...12.10
3rd speed rpm : 585
Rack travel in m: 12.20...12.30
4th speed rpm : 1100
Rack travel in m: 11.10...11.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.50...10.60

Measurement
Speed 1/min : 500

1st pressure hPa : 180
Rack travel in m: 10.90...11.00
2nd pressure hPa : 290
Rack travel in m: 11.70...12.00
3rd pressure hPa : 800
Rack travel in m: 12.20...12.30

START CUT-OUT

Speed 1/min : 230 (250)

K22

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm : 800
Del.quantity cm3/ : 77.0...80.0
1000 s: (74.5...82.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: 800
Speed rpm : 585
Del.quantity cm3/ : 71.0...74.0
1000 s: (68.5...76.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 39.0...41.0
1000 s: (37.0...43.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.00...8.20
Del.quantity cm3/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 6,1 V
Edition : 16.02.90
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 446 247
Injection pump
Pump designation : PES6MW100/720RS1195
EP type number : 0 413 406 183
Governor
Governor design. : RQV300...1150MW107
Governor no. : 0 420 083 208

Customer-spec. information
Customer : KHD

Engine : BF 6L 913 C

1st version kW : 101.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 740 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.70...9.80

Del.quantity cm3/ : 8.4...8.6

100 s: (8.2...8.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.5...7.7

Del.quantity cm3/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1200
travel mm : 9.80...10.20

2nd speed rpm : 800
travel mm : 6.00...6.20

3rd speed rpm : 500
travel mm : 3.20...3.80

4th speed rpm : 300
travel mm : 2.20...2.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1050

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 1000

Del.quantity : 84.0...86.0

1000 : (82.0...88.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 44...52

Testing:
1st rack travel in: 8.70
Speed rpm : 1180...1190
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.6

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 300
Rack travel in mm : 7.50...7.70
Rack travel in mm : 2.00
Speed rpm : 420...480

TORQUE CONTROL
Dimension a mm : 0.75
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 9.70...9.80
2nd speed rpm : 800
Rack travel in m: 10.40...10.50
3rd speed rpm : 1030
Rack travel in m: 10.00...10.20

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.70...9.80

Measurement
Speed 1/min : 500

1st pressure hPa : 360
Rack travel in m: 9.90...10.00
2nd pressure hPa : 450
Rack travel in m: 10.10...10.30
3rd pressure hPa : 1000
Rack travel in m: 10.40...10.50

START CUT-OUT

K24

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm3/ : 86.0...89.0
1000 s: (83.5...91.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 69.0...71.0
1000 s: (67.0...73.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.70
Speed rpm : 1180...1190

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 110.0...130.0
1000 s: (107.0...133.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.50...7.70
Del.quantity cm3/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Test electrically-released starting
quantity (EES) with 12 volts

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 84
Edition : 05.03.90
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 446 248
Injection pump
Pump designation : PES6MW100/720RS1144
EP type number : 0 413 406 138
Governor
Governor design. : RQV300...1400MW48-12
Governor no. : 0 420 083 212

Customer-spec. information
Customer : MB-NFZ

Engine : OM366C

1st version kW : 100.0
Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400
Rack travel in mm : 9.90...10.00
Del.quantity cm3/ : 5.9...6.1
100 s: (5.7...6.3)
Spread cm3 : 0.3
100 s: (0.6)

2nd speed rpm : 300.0
Rack travel in mm : 8.0...8.2
Del.quantity cm3/ : 0.9...1.3
100 s: (0.6...1.5)
Spread cm3 : 0.3
100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1550
travel mm : 9.20...9.60
2nd speed rpm : 1450
travel mm : 8.30...8.50
3rd speed rpm : 550
travel mm : 2.80...3.40
4th speed rpm : 300
travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1470
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1400
Del.quantity : 59.0...61.0
1000 : (57.0...63.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 50...58

Testing:

1st rack travel in: 8.90
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1530...1560
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.1

Testing:

Speed rpm : 100
Minimum rack travel: 9.50
Speed rpm : 300
Rack travel in mm : 8.00...8.20

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 9.90...10.00
2nd speed rpm : 800
Rack travel in m: 10.20...10.30
3rd speed rpm : 1050
Rack travel in m: 10.10...10.30

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm3/ : 52.5...55.5
1000 s: (50.0...58.0)
Spread cm3 : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.90
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.00...8.20
Del.quantity cm3/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,2 L 2
Edition : 01.02.90
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 456 108
Injection pump
Pump designation : PES6MW100/321RS1153
EP type number : 0 413 406 145
Governor
Governor design. : RQV250...1100MW83-1
Governor no. : 0 420 083 182

Cust. part no. : 3-7022

Customer-spec. information
Customer : MAN

Engine : D 0826 L/204

1st version kW : 150.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 800
Rack travel in mm : 11.40...11.50
Del.quantity cm3/ : 13.2...13.4
100 s: (13.0...13.6)
Spread cm3 : 0.3
100 s: (0.6)

2nd speed rpm : 250.0
Rack travel in mm : 4.8...5.0
Del.quantity cm3/ : 1.9...2.3
100 s: (1.6...2.5)
Spread cm3 : 0.3
100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1210
travel mm : 11.10...11.50
2nd speed rpm : 1150
travel mm : 10.20...10.40
3rd speed rpm : 550
travel mm : 3.20...3.80
4th speed rpm : 250
travel mm : 1.10...1.50

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1130
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 800
Aneroid pressure h: 1000
Del.quantity : 132.0...134.0
1000 : (130.0...136.0)

Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 54...62

Setting point:
Speed rpm : 1130
Rack travel in mm : 16.5

Testing:
1st rack travel in: 10.40
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 4.9

Testing:
Speed rpm : 100
Minimum rack travel: 7.00
Speed rpm : 250
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION
Speed rpm : 310...400

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 220
Rack travel mm : 9.10...9.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.80...8.90
2nd pressure hPa : 480
Rack travel in m: 10.70...11.00
3rd pressure hPa : 1000
Rack travel in m: 11.40...11.50

START CUT-OUT

Speed 1/min : 180 (200)

K28

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ : 129.0...132.0
1000 s: (126.5...134.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: 1000
Speed rpm : 1100
Del.quantity cm³/ : 131.5...134.5
1000 s: (129.0...137.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.40
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...140.0
1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.80...5.00
Del.quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
: #MAN 3-7022
Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 C11
Edition : 16.02.90
Replaces : 05.01.90
Test oil : ISO-4113

Combination no. : 0 403 466 110

Injection pump
Pump designation : PES6MW100/12ORS1137
EP type number : 0 413 406 131
Governor
Governor design. : RSV500...1250MW2A319
-6

Governer no. : 0 420 085 102

Cust. part no. : 3915688

Customer-spec. information
Customer : CUMMINS/US

Engine : 6 CTA-8.3 L

1st version kW : 171.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.80...12.90

Del.quantity cm³/ : 13.4...13.6

100 s: (13.2...13.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 500.0

Rack travel in mm : 6.5...6.7

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 134.0...136.0

1000 : (132.0...138.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 41...49

Setting point:

Speed rpm : 800
Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.80
Speed rpm : 1320...1330
2nd rack travel in: 4.00
Speed rpm : 1360...1390
4th rack travel in: 1550
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 19...27

Setting point w/out bumper spring

Speed rpm : 500
Rack travel in mm : 6.1

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 500
Rack travel in mm : 6.00...6.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 126.5...129.5
1000 s: (124.0...132.0)
Spread cm3 : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80

Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500
Rack travel in mm : 6.50...6.70
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)

Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: #CDC 3915688
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 C11
Edition : 16.02.90
Replaces : 05.01.90
Test oil : ISO-4113

Combination no. : 0 403 466 110

Injection pump
Pump designation : PES6MW100/120RS1137
EP type number : 0 413 406 131
Governor
Governor design. : RSV500...1250MW2A319
-6

Governor no. : 0 420 085 102

Cust. part no. : 3915688

Customer spec. information
Customer : CUMMINS/US

Engine : 6 CTA-8.3 L

1st version kW : 171.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250
Rack travel in mm : 12.80...12.90
Del.quantity cm3/ : 13.4...13.6
100 s: (13.2...13.8)
Spread cm3 : 0.3
100 s: (0.6)

2nd speed rpm : 500.0
Rack travel in mm : 6.5...6.7
Del.quantity cm3/ : 1.6...2.0
100 s: (1.3...2.2)
Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1250
Del.quantity : 134.0...136.0
1000 : (132.0...138.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 41...49

Setting point:
Speed rpm : 800
Rack travel in mm : 0.6

Testing:
1st rack travel in: 11.80
Speed rpm : 1320...1330
2nd rack travel in: 4.00
Speed rpm : 1360...1390
4th rack travel in: 1550
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 500
Rack travel in mm : 6.00...6.20

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm3/ : 126.5...129.5
1000 s: (124.0...132.0)
Spread cm3 : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500
Rack travel in mm : 6.50...6.70
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)

Spread cm3 : 3.50
1000 s: (5.50)

Remarks:
: #CDC 3915688
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 C12
 Edition : 02.02.90
 Replaces : 06.10.89
 Test oil : ISO-4113

Combination no. : 0 403 466 122

Injection pump
 Pump designation : PES6MW100/120RS1137
 EP type number : 0 413 406 131
 Governor
 Governor design. : RSV400...1250MW2A319
 -15
 Governor no. : 0 420 085 123

Cust. part no. : 3917598

Customer-spec. information
 Customer : CUMMINS

Engine : 6 CTA

1st version kW : 204.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.90...14.00

Del.quantity cm3/ : 15.9...16.1
 100 s: (15.7...16.3)

Spread cm3 : 0.3
 100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 6.6...6.8

Del.quantity cm3/ : 1.3...1.7
 100 s: (1.0...1.9)

Spread cm3 : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

Governor spring pre-tension
 Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Del.quantity : 159.5...161.5
 1000 : (157.5...163.5)

Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 50...58

Setting point:

Speed rpm : 800
Rack travel in mm : 0.8

Testing:

1st rack travel in: 12.90
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1365...1395
3rd rack travel in: 4.00
Speed rpm : 1385...1415
4th rack travel in: 1500
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 6.10...6.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 149.5...152.5
1000 s: (147.0...155.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.90
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.60...6.80

Del.quantity cm³/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: #CDC 3917598
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Starting/full-load transition speed
from holding magnet = 500 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 Q
Edition : 16.02.90
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 466 123

Injection pump
Pump designation : PES6MW100/12ORS1137-
2

EP type number : 0 413 406 180

Governor

Governor design. : RSV500...1250MW2A319
-16

Governor no. : 0 420 085 130

Customer-spec. information

Customer : CUMMINS

Engine : 6 CTA-8.3 L

1st version kW : 171.0

Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness : 6.00X2.00X600
x Length mm

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

L07

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.80...12.90

Del.quantity cm3/ : 13.4...13.6

100 s: (13.2...13.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 500.0

Rack travel in mm : 6.5...6.7

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-Lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 134.0...136.0

1000 : (132.0...138.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Setting point:

Speed rpm : 800
Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.80
Speed rpm : 1320...1330
2nd rack travel in: 4.00
Speed rpm : 1360...1390
4th rack travel in: 1550
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 6.1

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 500
Rack travel in mm : 6.00...6.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 126.5...129.5
1000 s: (124.0...132.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80
Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...145.0
1000 s: (122.0...148.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500
Rack travel in mm : 6.50...6.70
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

L08

Remarks:

: #CDC 3918357

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 I 2
 Edition : 05.03.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 466 124
 Injection pump
 Pump designation : PES6MW100/120RS1178
 EP type number : 0 413 406 160
 Governor
 Governor design. : RSV425...1250MW2A332
 -2
 Governor no. : 0 420 085 131

Customer-spec. information
 Customer : CUMMINS

Engine : 6 CT

1st version kW : 174.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness : 6.00X2.00X600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.45...3.55
 : (3.40...3.60)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 13.80...13.90

Del.quantity cm3/ : 14.2...14.4

100 s: (14.0...14.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 425.0
 Rack travel in mm : 5.4...5.6
 Del.quantity cm3/ : 1.1...1.5
 100 s: (0.8...1.7)
 Spread cm3 : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Aneroid pressure h: 900
 Del.quantity : 142.0...144.0
 1000 : (140.0...146.0)
 Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 42...50

Setting point:

Speed rpm : 800
Rack travel in mm : 0.6

Testing:

1st rack travel in: 12.80
Speed rpm : 940...950
2nd rack travel in: 4.00
Speed rpm : 1090...1120
3rd rack travel in: 4.00
Speed rpm : 1100...1130
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 25...33
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 525...585

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.80...11.00

Measurement

Speed 1/min : 500

1st pressure hPa : 305
Rack travel in m: 11.60...11.70
2nd pressure hPa : 465
Rack travel in m: 12.80...13.10
3rd pressure hPa : 900
Rack travel in m: 13.80...13.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 92.5...94.5
1000 s: (90.5...96.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.80
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...180.0
1000 s: (155.0...185.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: #CDC 3913758

Start-of-delivery mark at 14° angular
displacement of the cam after start of
delivery of cylinder 1

Starting/full-load transition speed
from holding magnet = 500 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 4,1 H
Edition : 02.02.90
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 474 009
Injection pump
Pump designation : PES4MW100/72ORS1187
EP type number : 0 413 404 108
Governor
Governor design. : RSV300...1250MW5A337
Governor no. : 0 420 085 128

Customer-spec. information
Customer : KHD

Engine : BF 4L 913C

1st version kW : 92.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.95...4.05
: (3.90...4.10)
Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.90...13.00

Del.quantity cm³/ : 11.8...12.0

100 s: (11.6...12.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0
Rack travel in mm : 8.0...8.2
Del.quantity cm³/ : 1.2...1.6
100 s: (0.9...1.8)
Spread cm³ : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3

Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : 4.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1250
Aneroid pressure h: 1000
Del.quantity : 118.0...120.0
1000 : (116.0...122.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 56...64

Setting point:
Speed rpm : 800
Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.90
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1550
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.6
Speed rpm : 300
Rack travel in mm : 7.50...7.70

SET IDLE AUXILIARY SPRING

Speed rpm : 300
Rack travel in mm : 8.00...8.20

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 12.90...13.00
2nd speed rpm : 800
Rack travel in m: 13.20...13.30
3rd speed rpm : 900
Rack travel in m: 13.10...13.30
4th speed rpm : 1000
Rack travel in m: 12.90...13.10

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.80...10.90

Measurement

Speed 1/min : 500

1st pressure hPa : 320
Rack travel in m: 11.40...11.50
2nd pressure hPa : 470
Rack travel in m: 12.30...12.60
3rd pressure hPa : 1000
Rack travel in m: 13.20...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 800

Del.quantity cm3/ : 113.5...116.5
1000 s: (111.0...119.0)
Spread cm3 : 3.50
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 66.0...68.0
1000 s: (64.0...70.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.00...8.20
Del.quantity cm3/ : 12.0...16.0
1000 s: (9.5...18.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 4,1 H 1
 Edition : 05.03.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 474 011
 Injection pump
 Pump designation : PES4MW100/720RS1187
 EP type number : 0 413 404 108
 Governor
 Governor design. : RSV300...1250MW5A337
 -1
 Governor no. : 0 420 085 137

Customer-spec. information
 Customer : KHD

Engine : BF 4L 913C

1st version kW : 92.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness : 6.00X2.00X600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.95...4.05
 : (3.90...4.10)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.90...13.00

Del.quantity cm³/ : 11.8...12.0

100 s: (11.6...12.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.0...8.2

Del.quantity cm³/ : 1.2...1.6

100 s: (0.9...1.8)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 1000

Del.quantity : 118.0...120.0

1000 : (116.0...122.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.90
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1550
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.6
Speed rpm : 300
Rack travel in mm : 7.50...7.70

SET IDLE AUXILIARY SPRING

Speed rpm : 300
Rack travel in mm : 8.00...8.20

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 12.90...13.00
2nd speed rpm : 800
Rack travel in m: 13.20...13.30
3rd speed rpm : 900
Rack travel in m: 13.10...13.30
4th speed rpm : 1000
Rack travel in m: 12.90...13.10

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.80...10.90

Measurement

Speed 1/min : 500

1st pressure hPa : 320
Rack travel in m: 11.40...11.50
2nd pressure hPa : 470
Rack travel in m: 12.30...12.60
3rd pressure hPa : 1000
Rack travel in m: 13.20...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 800

Del.quantity cm³/ : 113.5...116.5
1000 s: (111.0...119.0)
Spread cm³ : 3.50
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 66.0...68.0
1000 s: (64.0...70.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.00...8.20
Del.quantity cm³/ : 12.0...16.0
1000 s: (9.5...18.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:

Test electrically-released starting
quantity (EES) with 12 volts

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 r
Edition : 29.01.1990
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 476 003

Injection pump
Pump designation : PES6MW100/320LS1001
Governor
Governor design. : RSV375...1100MW2/304

Customer-spec. information
Customer : CASE

Engine : A 501 BDTI

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 000

Inlet press., bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.95...3.05
: (-)
Rack travel in mm : 10.5
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.5 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 14.1

Del.quantity cm3/ : 15.5...15.7
100 s: (-)

Spread cm3 : 0.3
100 s: (-)

2nd speed rpm : 375
Rack travel in mm : 6.0
Del.quantity cm3/ : 1.6...2.2
100 s: (-)
Spread cm3 : 0.3
100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del.quantity : 155.0...157.0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 43...47

Testing:
1st rack travel in: 13.1
Speed rpm : 1140...1150
2nd rack travel in: 4.0
Speed rpm : 1215...1245
3rd rack travel in: 0.3...1.7
Speed rpm : 1300

LOW IDLE 1

Control lever
position degrees: 22...25
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 5.5

Speed rpm : 375
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 480...540

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 14.1
2nd speed rpm : 700
Rack travel in m: 14.2...14.6
3rd speed rpm : 600
Rack travel in m: 14.3...14.5

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm3/ : 157.0...163.0
1000 s: (-)
Speed rpm : 600
Del.quantity cm3/ : < 161.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.1
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 16.0...22.0
1000 s: (-)

Remarks:

: CASE # A-150238

Start-of-delivery mark is at start of
delivery of cylinder 1

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 6,1 N 1
 Edition : 01.02.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 044
 Injection pump
 Pump designation : PES6MW100/320RS1132
 EP type number : 0 413 406 124
 Governor
 Governor design. : RSV650...750MW4A311-
 1
 Governor no. : 0 420 085 134

Customer-spec. information
 Customer : VOLVO-PENTA

Engine : TD 61 AG

1st version kW : 83.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.90...3.00
 : (2.85...3.05)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.30...11.40

Del.quantity cm³/ : 8.2...8.4

100 s: (8.0...8.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 650.0

Rack travel in mm : 6.3...6.4

Del.quantity cm³/ : 1.7...2.1

100 s: (1.5...2.2)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 82.0...84.0

1000 : (80.0...86.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 33...41

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.30

Speed rpm : 750...760

2nd rack travel in: 4.00

Speed rpm : 765...795

4th rack travel in: 950
Speed rpm : 0.30...1.70

LOW IDLE 1

Control Lever
position degrees: 27...35
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 5.8

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 650
Rack travel in mm : 5.80...5.90

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.30
Speed rpm : 750...760

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (137.0...163.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 650
Rack travel in mm : 6.30...6.40
Del.quantity cm3/ : 17.0...21.0
1000 s: (15.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 6,1 N 2
 Edition : 01.02.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 045
 Injection pump
 Pump designation : PES6MW100/320RS1132
 EP type number : 0 413 406 124
 Governor
 Governor design. : RSV650...750MW4A311-
 2
 Governor no. : 0 420 085 135
 Customer-spec. information
 Customer : VOLVO-PENTA
 Engine : TID 61 AG
 1st version kW : 102.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test Lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.90...3.00
 : (2.85...3.05)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 12.80...12.90
 Del.quantity cm3/ : 11.3...11.5
 100 s: (11.1...11.7)
 Spread cm3 : 0.3
 100 s: (0.6)
 2nd speed rpm : 650.0
 Rack travel in mm : 6.2...6.3
 Del.quantity cm3/ : 1.7...2.1
 100 s: (1.5...2.2)
 Spread cm3 : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del.quantity : 113.0...115.0
 1000 : (111.0...117.0)
 Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 34...42

Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.6

Testing:
 1st rack travel in: 11.80
 Speed rpm : 750...760
 2nd rack travel in: 4.00
 Speed rpm : 780...810

4th rack travel in: 950
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 27...35
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 5.7

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 650
Rack travel in mm : 5.70...5.80

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 750...760

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (137.0...163.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 650
Rack travel in mm : 6.20...6.30
Del.quantity cm³/ : 17.0...21.0
1000 s: (15.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6, D H 1
 Edition : 02.02.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 080
 Injection pump
 Pump designation : PES6MW100/720RS1191
 EP type number : 0 413 406 179
 Governor
 Governor design. : RSV350...1300MWOA329
 -6
 Governor no. : 0 420 085 136

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 LA

1st version kW : 170.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1280

Rack travel in mm : 14.00...14.10

Del.quantity cm3/ : 11.2...11.4

100 s: (11.0...11.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280

Aneroid pressure h: 1000

Del.quantity : 112.0...114.0

1000 : (110.0...116.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 55...63

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 13.00
Speed rpm : 1330...1340
2nd rack travel in: 4.00
Speed rpm : 1420...1450
4th rack travel in: 1550
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 25...33
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.10...10.20

Measurement

Speed 1/min : 500

1st pressure hPa : 350
Rack travel in m: 11.30...11.40
2nd pressure hPa : 500
Rack travel in m: 12.80...13.10
3rd pressure hPa : 1000
Rack travel in m: 14.00...14.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm3/ : 99.5...102.5
1000 s: (97.0...105.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 35.0...37.0
1000 s: (33.0...39.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 1330...1340

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm3/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:

Test hydr. locking device for starting
with 500...1000 hPa air pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 13,4 F3
 Edition : 05.03.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 548 035
 Injection pump
 Pump designation : PE8MW100/720LS1173
 EP type number : 0 413 508 108
 Governor
 Governor design. : RQ300/1000MW104-1
 Governor no. : 0 420 082 041

Customer-spec. information
 Customer : KHD

Engine : F8L513

1st version kW : 150.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 740 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
 : (3.05...3.25)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed	rpm	: 1000
Rack travel in mm		: 10.00...10.10
Del.quantity cm3/		: 9.0...9.2
	100 s:	(8.8...9.4)
Spread	cm3	: 0.3
	100 s:	(0.6)
2nd speed	rpm	: 300.0
Rack travel in mm		: 4.9...5.1
Del.quantity cm3/		: 1.1...1.5
	100 s:	(0.8...1.7)
Spread	cm3	: 0.3
	100 s:	(0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1100
travel mm		: 8.80...9.20
2nd speed	rpm	: 1060
travel mm		: 6.90...7.10
3rd speed	rpm	: 450
travel mm		: 4.20...4.80
4th speed	rpm	: 300
travel mm		: 1.30...1.70

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version		
Speed	rpm	: 1000
Del.quantity		: 90.0...92.0
	1000	: (88.0...94.0)
Spread	cm3	: 3.50
	1000	: (6.00)

RATED SPEED

1st version
Control lever
position degrees: 26...34

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 9.00
Speed rpm : 1040...1055
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 6...14
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.0

Testing:
Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 300
Rack travel in mm : 4.90...5.10

TORQUE CONTROL
Dimension a mm : 0.60
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 10.00...10.10
2nd speed rpm : 700
Rack travel in m: 11.20...11.30
3rd speed rpm : 900
Rack travel in m: 10.40...10.70

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del.quantity cm3/ : 102.5...105.5
1000 s: (100.0...108.0)
Spread cm3 : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.00

Speed rpm : 1040...1055

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...150.0
1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.90...5.10
Del.quantity cm3/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Set warm starting fuel delivery
110 cm³ /1000 strokes at n = 100
min -1 at spool

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 13,4017
 Edition : 12.02.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 548 036
 Injection pump
 Pump designation : PE8MW100/720LS1128
 EP type number : 0 413 508 103
 Governor
 Governor design. : RQV425...900MW76-1
 Governor no. : 0 420 083 210

Customer-spec. information
 Customer : KHD

Engine : BF 8L 513

1st version kW : 160.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 740 014

Outside diameter
 x Wall thickness : 6.00X2.00X600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
 : (3.05...3.25)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 875

Rack travel in mm : 10.50...10.60

Del.quantity cm³/ : 10.3...10.5

100 s: (10.1...10.7)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 4.9...5.1

Del.quantity cm³/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1000
 travel mm : 9.50...10.10

2nd speed rpm : 950
 travel mm : 8.70...8.90

3rd speed rpm : 600
 travel mm : 3.90...4.50

4th speed rpm : 425
 travel mm : 1.60...2.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 925

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875

Del.quantity : 103.0...105.0

1000 : (101.0...107.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 49...57

Testing:
1st rack travel in: 9.50
Speed rpm : 915...925
2nd rack travel in: 4.00
Speed rpm : 955...985
4th rack travel in: 1050
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.0

Testing:
Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 425
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION
Speed rpm : 430...490

TORQUE CONTROL
Dimension a mm : 0.60
Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 10.50...10.60
2nd speed rpm : 600
Rack travel in m: 11.10...11.20
3rd speed rpm : 750
Rack travel in m: 10.80...11.00

START CUT-OUT

Speed 1/min : 350 (370)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm3/ : 108.5...111.5
1000 s: (106.0...114.0)
Spread cm3 : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...150.0
1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 4.90...5.10
Del.quantity cm3/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 h12
 Edition : 01.02.90
 Replaces : 14.1.88
 Test oil : ISO-4113

Combination no. : 9 400 230 069

Injection pump
 Pump designation : PES6A100D410RS2676-1
 EP type number : 9 410 230 024
 Governor
 Governor design. : RSV450...1000A1C2186
 -1L
 Governor no. : 9 420 234 149

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6466A

1st version kW : 140.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.45...2.55
 : (2.40...2.60)

Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.60...11.70

Del.quantity cm3/ : 12.1...12.3

100 s: (11.9...12.5)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 5.8...6.0

Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 121.5...123.5

1000 : (119.5...125.0)

Spread cm3 : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 47...55

Testing:

1st rack travel in: 10.60

Speed rpm : 1045...1055

2nd rack travel in: 4.00

Speed rpm : 1070...1100
4th rack travel in: 1150
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 450
Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 11.60...11.60
2nd speed rpm : 700
Rack travel in m: 12.50...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm³/ : 132.0...135.0
1000 s: (129.5...137.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.60
Speed rpm : 1045...1055

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 190.0...210.0
1000 s: (185.0...215.0)
Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version

Speed rpm : 1075
Rack travel in mm : 5.90...6.10

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.80...6.00

Del.quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE28030
Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark at 14° angular
displacement of the cam after start of
delivery of cylinder 1 with control-rod
travel = 10.50 mm.

Starting/full-load transition speed
from holding magnet = 450 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a76
Edition : 01.02.90
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 230 089CW

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025
Governor
Governor design. : RSV400...1100A0C2190
-3R

Governor no. : 9 420 234 125

Cust. part no. : 3915294

Customer-spec. information
Customer : C.D.C.

Engine : 6 C 8.3

1st version kW : 164.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.50...11.60

Del.quantity cm3/ : 11.3...11.5

100 s: (11.1...11.7)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.8...6.0

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 113.0...115.0

1000 : (111.0...117.0)

Spread cm3 : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 10.50
Speed rpm : 1140...1150
3rd rack travel in: 4.00
Speed rpm : 1185...1215
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.50
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

:

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 j 1
Edition : 28.09.89
Replaces : 15.6.88
Test oil : ISO-4113

Combination no. : 9 400 230 096DA

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025
Governor
Governor design. : RSV425...900A4C2213

Cust. part no. : 3908845

Customer-spec. information
Customer : C.D.C.

Engine : 6CT-I

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 14.00...14.10

Del.quantity cm³/ : 14.2...14.4

100 s: (14.0...14.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 6.0...6.2

Del.quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 142.5...144.5

1000 : (140.5...146.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 37...45

Testing:

1st rack travel in: 13.00

Speed rpm : 795...805

2nd rack travel in: 4.00

Speed rpm : 825...855
3rd rack travel in: 4.00
Speed rpm : 830...860

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.6

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 425
Rack travel in mm : 6.00...6.20
Rack travel in mm : 2.00
Speed rpm : 440...500

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 795...805

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 6.00...6.20
Del.quantity cm3/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a12
Edition : 01.02.90
Replaces : 7.4.89
Test oil : ISO-4113

Combination no. : 9 400 230 097

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025
Governor
Governor design. : RSV400...1100AOC2190
-8R

Governer no. : 9 420 234 137

Customer-spec. information
Customer : C.D.C.

Engine : 6 CT 8.3

1st version kW : 156.6
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
(2.75...2.95)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.30...12.40

Del.quantity cm3/ : 12.2...12.4

100 s: (12.0...12.6)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.6...5.8

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 122.5...124.5

1000 : (120.5...126.5)

Spread cm3 : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 11.30
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1185...1215
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.60...5.80

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.30
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3911952

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a13
 Edition : 01.02.90
 Replaces : 7.4.89
 Test oil : ISO-4113

Combination no. : 9 400 230 099

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1050AOC2190
 -10R
 Governor no. : 9 420 234 142

Customer-spec. information
 Customer : C.D.C.

Engine : 6 C 8.3

1st version kW : 89.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

MD7

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 9.60...9.70

Del.quantity cm³/ : 8.2...8.4

100 s: (8.0...8.6)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 82.0...84.0

1000 : (80.0...86.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control Lever

position degrees: 41...49

Testing:

1st rack travel in: 8.60
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1125...1155
4th rack travel in: 1200
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.60...5.80

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 9.60...9.70
2nd speed rpm : 750
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 86.5...90.5
1000 s: (84.5...92.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.60
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3915964

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a48
Edition : 02.05.89
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 230 099AA

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025
Governor
Governor design. : RSV400...1100A0C2190

Cust. part no. : 3911948

Customer-spec. information
Customer : C.D.C.

Engine : 6 C 8.3

1st version kW : 111.9
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
(2.75...2.95)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.30...11.40

Del.quantity cm3/ : 10.5...10.7

100 s: (10.3...10.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.8...6.0

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 105.5...107.5

1000 : (103.5...109.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 10.30
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1195...1225
3rd rack travel in: 4.00
Speed rpm : 1205...1235
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 475...535

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.30
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 k
Edition : 01.02.90
Replaces : 15.6.88
Test oil : ISO-4113

Combination no. : 9 400 230 102

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025
Governor
Governor design. : RSV400...105DAOC2216
R
Governor no. : 9 420 234 146

Customer-spec. information
Customer : C.D.C.

Engine : 6 CTA 8.3

1st version kW : 141.7
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.10...11.20

Del.quantity cm3/ : 10.0...10.2

100 s: (9.8...10.4)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 400.0
Rack travel in mm : 5.9...6.1
Del.quantity cm3/ : 1.8...2.2
100 s: (1.5...2.4)
Spread cm3 : 0.6
100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del.quantity : 100.5...102.5
1000 : (98.5...104.5)
Spread cm3 : 4.00
1000 : (6.50)

RATED SPEED

1st version
Control Lever
position degrees: 43...51

Testing:

1st rack travel in: 10.10
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 25...34
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.5

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.90...6.10

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.10...11.20
2nd speed rpm : 750
Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 126.0...130.0
1000 s: (124.0...132.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.10
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3911963

Adjust stop lever to 0.5...1.0 mm
before stop.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 a12
 Edition : 26.01.1990
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 231 042
 Injection pump
 Pump designation : PES6P110A72ORS361
 Governor
 Governor design. : RSV450...1100P2/467

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6466 AT

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 010

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.5
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.5 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 10.9

Del.quantity cm3/ : 13.7...13.9

100 s: (-)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 450

Rack travel in mm : 5.5

Del.quantity cm3/ : 0.9...1.5

100 s: (-)

Spread cm3 : 0.6

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 670

Del.quantity : 137.0...139.0

1000 : (134.0...142.0)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 9.9

Speed rpm : 1095...1105

2nd rack travel in: 4.0

Speed rpm : 1200...1230

3rd rack travel in: 0.3...1.7

Speed rpm : 1300

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack trave: 19.0
Speed rpm : 450
Rack travel in mm : 5.5
Rack travel in mm : 2.0
Speed rpm : 635...695
Speed rpm : 850
Maximum rack trave: 1.0

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050
Rack travel in m: 10.85...10.95
2nd speed rpm : 900
Rack travel in m: 11.10...11.20
3rd speed rpm : 850
Rack travel in m: 10.85...11.15
4th speed rpm : 650
Rack travel in m: 11.55...11.65
5th speed rpm : 550
Rack travel in m: 8.85...8.95

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 410
Rack travel mm : 10.85...10.95

Measurement

Speed 1/min : 500

1st pressure hPa : 180
Rack travel in m: 9.40...9.80

START CUT-OUT

Speed 1/min : 400...700

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 670
Speed rpm : 650
Del.quantity cm3/ : 150.5...153.5
1000 s: (147.0...157.0)
Aneroid pressure h: -
Speed rpm : 550
Del.quantity cm3/ : 86.0...94.0
1000 s: (85.0...95.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.9
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 15.0...17.0
1000 s: (-)
Rack travel in mm : 21.0

HIGH IDLE

1st version

Speed rpm : 1150
Del.quantity cm3/ : 60.0...70.0
1000 s: (58.5...71.5)

LOW IDLE

Speed rpm : 450
Del.quantity cm3/ : 9.0...15.0
1000 s: (7.0...17.0)

Remarks:

: JOHN DEERE # AR91127
Start-of-delivery mark = 13.25° after
start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7.6 a 5
 Edition : 25.01.1990
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 231 076
 Injection pump
 Pump designation : PES6P110A72ORS361
 Governor
 Governor design. : RSV600...1100P2/480

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6466 A

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve
 : 1 457 413 010

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 705

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.5
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.5 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 12.0
 Del.quantity cm3/ : 16.2...16.4
 100 s : (-)
 Spread cm3 : 0.4
 100 s : (-)

2nd speed rpm : 600
 Rack travel in mm : 5.6
 Del.quantity cm3/ : 2.2...2.8
 100 s : (-)
 Spread cm3 : 0.4
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 162.5...164.5
 1000 : (159.5...167.5)

RATED SPEED

1st version
 Control lever
 position degrees: 42...50

Testing:
 1st rack travel in: 11.0
 Speed rpm : 1145...1155
 2nd rack travel in: 4.0
 Speed rpm : 1225...1255
 3rd rack travel in: 0.3...1.7
 Speed rpm : 1350

LOW IDLE 1

Control lever
 position degrees: 21...29
 Setting point w/out bumper spring
 Speed rpm : 600
 Rack travel in mm : 5.1

Testing:
 Speed rpm : 100

Minimum rack travel: 19.00
Speed rpm : 600
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 730...760

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.95...12.05
2nd speed rpm : 950
Rack travel in m: 11.95...12.25
3rd speed rpm : 850
Rack travel in m: 12.25...12.35

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 850
Del.quantity cm³/ : 169.0...173.0
1000 s: (166.0...176.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.0
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 15.5...17.5
1000 s: (-)
Rack travel in mm : 21.0

HIGH IDLE

1st version
Speed rpm : 1200
Del.quantity cm³/ : 55.0...65.0
1000 s: (-)

LOW IDLE

Speed rpm : 600
Del.quantity cm³/ : 22.0...28.0
1000 s: (-)

Remarks:

: JOHN DEERE # AR96258

Start-of-delivery mark = 13.25° after
start of delivery cyl. 1.

Magnet.

M16

Acceleration from start to full load
with n = 400...750 min. -1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 g 7
Edition : 25.01.1990
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 231 176
Injection pump
Pump designation : PES6P110A72ORS3083
Governor
Governor design. : RSV400...1050P2/488-
2

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466 A

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 457 413 010

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 3.45...3.55
: (3.40...3.60)
Rack travel in mm : 10.5
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.5 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.5

Del.quantity cm3/ : 14.65...14.95

100 s: (-)

Spread cm3 : 0.4

100 s: (0.75)

2nd speed rpm : 400
Rack travel in mm : 7.0
Del.quantity cm3/ : 1.35...1.85
100 s: (-)
Spread cm3 : 0.45
100 s: (0.75)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.40

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Aneroid pressure h: 1200
Del.quantity : 146.5...146.5
1000 : (144.0...152.0)

RATED SPEED

1st version
Control lever
position degrees: 42...50

Testing:
1st rack travel in: 11.5
Speed rpm : 1090...1100
2nd rack travel in: 4.0
Speed rpm : 1175...1205
3rd rack travel in: 4.0
Speed rpm : 1185...1215
4th rack travel in: 1300
Speed rpm : 0.3...1.7

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 660...720

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.5
2nd speed rpm : 700
Rack travel in m: 13.7...13.9

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 413
Rack travel mm : 13.05...13.15

Measurement

Speed 1/min : 500
1st pressure hPa : 147
Rack travel in m: 11.1...11.5
2nd pressure hPa : -
Rack travel in m: 10.4

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 700
Del.quantity cm³/ : 179.0...183.0
1000 s: (176.0...186.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 91.0...95.0
1000 s: (88.0...98.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.5
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...190.0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1150
Del.quantity cm³/ : 47.0...57.0
1000 s: (45.5...58.5)

LOW IDLE

Speed rpm : 400
Del.quantity cm³/ : 13.5...18.5
1000 s: (11.0...21.0)

Remarks:

Start-of-delivery mark = 12,75° after
start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,3 k 2
 Edition : 15.12.89
 Replaces : 12.9.86
 Test oil : ISO-4113
 Combination no. : 0 400 646 268
 Injection pump
 Pump designation : PE6A95D410RS2525
 EP type number : 0 410 696 987
 Governor
 Governor design. : RQ225/1200AB1156L
 Governor no. : 0 420 200 079

Customer-spec. information
 Customer : DAF

Engine : DH 825

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 7.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 1200
 Rack travel in mm : 10.40...10.50
 Del.quantity cm3/ : 7.3...7.5
 100 s: (7.1...7.7)
 Spread cm3 : 0.3
 100 s: (0.6)

2nd speed rpm : 225.0
 Rack travel in mm : 5.9...6.1
 Del.quantity cm3/ : 0.7...1.1
 100 s: (0.4...1.3)
 Spread cm3 : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 650
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Del.quantity : 73.0...75.0
 1000 : (71.0...77.0)
 Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version

Setting point:
 Speed rpm : 650
 Rack travel in mm : 20.0

Testing:
 1st rack travel in: 9.40
 Speed rpm : 1245...1260

2nd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 225
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack trave: 7.50
Speed rpm : 225
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 345...385
Speed rpm : 490
Maximum rack trave: 1.00

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 10.40...10.50
2nd speed rpm : 650
Rack travel in m: 11.70...11.80
4th speed rpm : 1035
Rack travel in m: 10.90...11.10
5th speed rpm : 1100
Rack travel in m: 10.50...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm3/ : 74.5...77.5
1000 s: (72.0...80.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...140.0
1000 s: (127.0...143.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 9,6 i 1
 Edition : 22.3.90
 Replaces : 11.12.87
 Test oil : ISO-4113

Combination no. : 0 400 646 271

Injection pump
 Pump designation : PE6A95D410LS2621
 EP type number : 0 410 696 982
 Governor
 Governor design. : RQV300...1250AB1195L
 Governor no. : 0 420 212 172

Customer-spec. information
 Customer : KHD

Engine : F6L413F

1st version kW : 141.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing : 0-75-120-195-240-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.40...10.50

Del.quantity cm3/ : 9.6...9.8

100 s: (9.4...10.0)

Spread cm3 : 0.35

100 s: (0.6)

2nd speed rpm : 300
 Rack travel in mm : 10.90...11.00
 Del.quantity cm3/ : 0.8...1.4
 100 s: (0.55...1.65)
 Spread cm3 : 0.35
 100 s: (0.55)
 100 s: 7.70..

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.20...1.30
 2nd speed rpm : 500
 travel mm : 2.60...2.90
 3rd speed rpm : 1000
 travel mm : 5.40...5.60
 4th speed rpm : 1300
 travel mm : 7.70...7.80
 5th speed rpm : 1380
 travel mm : 8.50...8.80

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1250
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Del.quantity : 96.5...98.5
 1000 : (94.5...100.5)
 Spread cm3 : 3.5
 1000 : (6.0)

RATED SPEED

1st version
Control lever
position degrees: 47...55

Testing:
1st rack travel in: 9.40
Speed rpm : 1290...1300
2nd rack travel in: 4.50
Speed rpm : 1365...1395
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 14...22

Testing:
Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION
Speed rpm : 375...485

TORQUE CONTROL
Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 10.40...10.50
2nd speed rpm : 500
Rack travel in m: 10.90...11.00
3rd speed rpm : 850
Rack travel in m: 10.70...10.90
4th speed rpm : 950
Rack travel in m: 10.50...10.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 650
Del.quantity cm³/ : 95.0...98.0
1000 s: (92.5...100.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.40
Speed rpm : 1290...1300

M22

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.40...14.80

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 9,6 i 2
 Edition : 05.03.90
 Replaces : 26.8.88
 Test oil : ISO-4113
 Combination no. : 0 400 646 275
 Injection pump
 Pump designation : PE6A95D410LS2621
 EP type number : 0 410 696 982
 Governor
 Governor design. : RQ300/1250AB1148-1L
 Governor no. : 0 420 200 104

Customer-spec. information
 Customer : KHD

Engine : F6L413F

1st version kW : 141.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.60...10.70

Del.quantity cm³/ : 9.6...9.8

100 s: (9.4...10.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm³/ : 0.8...1.4

100 s: (0.5...1.6)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 16.80...18.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 96.5...98.5

1000 : (94.5...100.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 17.6

Testing:

1st rack travel in: 9.60

Speed rpm : 1295...1310

2nd rack travel in: 4.00

Speed rpm : 1325...1355

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.5

Testing:

Speed rpm : 100

Minimum rack trave: 7.90

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : 0.17

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 10.60...10.70

2nd speed rpm : 600

Rack travel in m: 11.10...11.20

3rd speed rpm : 915

Rack travel in m: 11.10...11.20

4th speed rpm : 980

Rack travel in m: 10.60...10.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/ : 95.0...98.0

1000 s: (92.5...100.5)

RACK STOP ADJUSTMENT

Speed rpm : 650

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60

Speed rpm : 1295...1310

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 15.30...15.60

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAO 14,6 a
Edition : 07.02.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 648 146

Injection pump
Pump designation : PE8A95D320LS2672
EP type number : 0 410 698 985
Governor
Governor design. : RQ250/1150AB1191-1R
Governor no. : 0 420 201 646

Customer-spec. information

Engine : D2848 M

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60
: (1.45...1.65)
Rack travel in mm : 9.00...12.00
Firing order : 8- 7- 2- 6- 3- 5-
4- 1

Phasing : 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 12.90...13.00

Del. quantity cm³/ : 10.4...11.1

100 s: (10.7...11.3)

Spread cm³ : 0.3

100 s: (0.4)

2nd speed rpm : 250.0
Rack travel in mm : 8.1...8.3
Del. quantity cm³/ : 0.9...1.5
100 s: (0.6...1.7)
Spread cm³ : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 600
Rack travel in mm : 13.20...13.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1150
Del. quantity : 109.0...111.0
1000 : (107.0...113.0)
Spread cm³ : 3.50
1000 : (4.50)

RATED SPEED

1st version

Setting point:
Speed rpm : 600
Rack travel in mm : 13.5

Testing:
1st rack travel in: 11.90
Speed rpm : 1195...1210
2nd rack travel in: 4.00
Speed rpm : 1245...1275

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250

Rack travel in mm : 7.4

Testing:

Speed rpm : 100
Minimum rack trave: 8.90
Speed rpm : 250
Rack travel in mm : 7.30...7.50
Rack travel in mm : 2.00
Speed rpm : 385...425

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 12.90...13.00
2nd speed rpm : 600
Rack travel in m: 12.90...13.10

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 1195...1210

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 170.0...180.0
1000 s: (167.0...183.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 15,8 L
Edition : 15.03.90
Replaces : 7.4.89
Test oil : ISO-4113

Combination no. : 0 400 649 196

Injection pump
Pump designation : PE10A95D610/4LS2452
EP type number : 0 410 699 998
Governor
Governor design. : RQV750AB996L
Governor no. : 0 420 212 091

Customer-spec. information
Customer : KHD

Engine : F10L413F

1st version kW : 162.0
Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-10- 9- 4- 3- 6-
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 710

Rack travel in mm : 10.60...10.70

Del. quantity cm3/ : 9.7...9.9

100 s: (9.5...10.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del. quantity cm3/ : 0.6...1.6

100 s: (0.3...1.8)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 755

travel mm : 5.20...5.40

2nd speed rpm : 785

travel mm : 7.40...7.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 710

Del. quantity : 97.0...99.0

1000 : (95.0...101.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Testing:

1st rack travel in: 9.60

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 772...787

START CUT-OUT

Speed 1/min : 660 (680)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60

Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)

Remarks:

:

APPLICATION

Compressor

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 15,8 d2
 Edition : 12.09.86
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 649 243
 Injection pump
 Pump designation : PE10A95D610/4LS2452
 EP type number : 0 410 699 998
 Governor
 Governor design. : RQV300...1250AB1223-1L
 Governor no. : 0 420 212 194

Customer-spec. information
 Customer : KHD

Engine : F10L413F

1st version kw : 235.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00
 Firing order : 1-10- 9- 4- 3- 6-
 5- 8- 7- 2

Phasing : 0-27-72-99-144-171-
 216-243-288-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.40...10.50

Del.quantity cm3/ : 9.4...9.6

100 s: (9.2...9.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.0...1.6
 100 s: (0.7...1.8)

Spread cm3 : 0.5
 100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 200
 travel mm : 0.70...0.80

2nd speed rpm : 500
 travel mm : 2.60...2.80

3rd speed rpm : 900
 travel mm : 5.60...5.80

4th speed rpm : 1300
 travel mm : 8.60...8.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1275

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 94.0...96.0

1000 : (92.0...98.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 9.40

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1360...1390

3rd rack travel in: 0.00...1.00

Speed rpm : 1500

LOW IDLE 1

Control lever

position degrees: 14...18

Testing:

Speed rpm : 100

Minimum rack travel: 8.00

Speed rpm : 300

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 375...485

TORQUE CONTROL

Dimension a mm : 0.50

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 10.40...10.50

2nd speed rpm : 500

Rack travel in m: 10.90...11.00

3rd speed rpm : 790

Rack travel in m: 10.70...10.90

4th speed rpm : 885

Rack travel in m: 10.40...10.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm³/ : 93.5...96.5

1000 s: (91.0...99.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40

Speed rpm : 1290...1300

NO2

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 13.50...14.20

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 15,8 d3
 Edition : 14.04.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 649 245
 Injection pump
 Pump designation : PE10A95D610/4LS2452
 EP type number : 0 410 699 998
 Governor
 Governor design. : RQV300...1250AB1055-2L
 Governor no. : 0 420 212 216

Customer-spec. information
 Customer : KHD

Engine : F10L413F

1st version kW : 206.0

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1-10- 9- 4- 3- 6-
 5- 8- 7- 2

Phasing : 0-27-72-99-144-171-
 216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.60...9.70

Del.quantity cm3/ : 8.5...8.7

100 s: (8.3...8.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.0...1.6

100 s: (0.7...1.8)

Spread cm3 : 0.5

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.40...1.50

2nd speed rpm : 410

travel mm : 2.50...2.70

3rd speed rpm : 460

travel mm : 3.00...3.20

4th speed rpm : 1305

travel mm : 8.60...8.80

5th speed rpm : 1375

travel mm : 9.60...9.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1255

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 85.0...87.0

1000 : (83.0...89.0)

Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 50...58

Testing:
1st rack travel in: 8.60
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1355...1385
4th rack travel in: 1475
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 16...24

Testing:
Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION
Speed rpm : 408...458

TORQUE CONTROL
Dimension a mm : 1.00
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 9.60...9.70
2nd speed rpm : 750
Rack travel in m: 10.60...10.70
3rd speed rpm : 945
Rack travel in m: 10.30...10.50
4th speed rpm : 1110
Rack travel in m: 9.80...10.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 93.5...96.5
1000 s: (91.0...99.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.60
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 13.50...14.20

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 6,5 a
Edition : 07.02.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 656 148

Injection pump
Pump designation : PE6A90D321RS2413
EP type number : 0 410 696 170
Governor
Governor design. : RQ250/1300AB863DR
Governor no. : 0 420 203 098

Customer-spec. information
Customer : ENASA

Engine : 9130.00

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
: (2.10...2.30)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1280

Rack travel in mm : 10.20...10.30

Del.quantity cm3/ : 7.5...7.6

100 s: (7.3...7.8)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del.quantity cm3/ : 1.2...1.8

100 s: (1.0...2.0)

Spread cm3 : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280

Del.quantity : 75.0...76.0

1000 : (73.0...78.0)

Spread cm3 : 3.00

1000 : (5.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 16.0

Testing:

1st rack travel in: 9.20

Speed rpm : 1325...1340

2nd rack travel in: 4.00

Speed rpm : 1360...1390

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.0

Testing:

Speed rpm : 150
Minimum rack trave: 7.00
Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : 0.20
Torque control curve - 1st version
1st speed rpm : 1280
Rack travel in m: 10.20...10.30
2nd speed rpm : 500
Rack travel in m: 10.60...10.70
3rd speed rpm : 700
Rack travel in m: 10.50...10.60
4th speed rpm : 760
Rack travel in m: 10.30...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm3/ : 64.0...66.0
1000 s: (61.5...68.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 1325...1340

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 90.0...100.0
1000 s: (87.0...103.0)
Rack travel in mm : 14.80...15.20

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 6,5 c
 Edition : 27.10.89
 Replaces : 21.4.89
 Test oil : ISO-4113
 Combination no. : 0 400 656 161
 Injection pump
 Pump designation : PE6A90D321RS2690
 EP type number : 0 410 696 182
 Governor
 Governor design. : RQV250...1300AB1238R
 Governor no. : 0 420 213 109

Customer-spec. information
 Customer : ENASA

Engine : 94T 3AW 31500

1st version kW : 125.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
 : (2.10...2.30)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.20...12.30

Del.quantity cm3/ : 9.2...9.3

100 s: (9.0...9.5)

Spread cm3 : 0.3

100 s: (0.4)

2nd speed rpm : 250.0

Rack travel in mm : 8.1...8.3

Del.quantity cm3/ : 1.2...1.8

100 s: (1.0...2.0)

Spread cm3 : 0.2

100 s: (0.4)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.00...1.20

2nd speed rpm : 300

travel mm : 2.30...2.70

3rd speed rpm : 1340

travel mm : 8.60...8.80

4th speed rpm : 1465

travel mm : 9.70...10.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1300

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 92.5...93.5

1000 : (90.5...95.5)

Spread cm3 : 3.00

1000 : (4.50)

RATED SPEED

1st version
Control lever
position degrees: 41...49

Testing:
1st rack travel in: 11.20
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1445...1475
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 11...19

Testing:
Speed rpm : 100
Minimum rack travel: 9.60
Speed rpm : 250
Rack travel in mm : 8.10...8.30

CONSTANT REGULATION
Speed rpm : 285...390

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 12.20...12.30
2nd speed rpm : 500
Rack travel in m: 12.60...12.80
3rd speed rpm : 900
Rack travel in m: 12.30...12.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 12.30...12.50

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.50...10.60
2nd pressure hPa : 490
Rack travel in m: 12.00...12.10
3rd pressure hPa : 400
Rack travel in m: 11.10...11.30

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

NO8

1st version
Aneroid pressure h: 700
Speed rpm : 900
Del.quantity cm3/ : 94.0...98.0
1000 s: (91.5...100.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 56.0...57.0
1000 s: (54.0...59.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.20
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 160.0...170.0
1000 s: (157.0...173.0)
Rack travel in mm : 19.50...21.00

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : HAN 7,2 b 3
 Edition : 24.11.89
 Replaces : 24.5.89
 Test oil : ISO-4113
 Combination no. : 0 400 674 047
 Injection pump
 Pump designation : PE4A95D42ORS2662-1
 EP type number : 0 410 694 994
 Governor
 Governor design. : RSV350...1100A8C2222
 -1R
 Governor no. : 0 420 233 251

Customer-spec. information
 Customer : HANOMAG

Engine : D944T-50E

1st version kw : 105.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
 : (2.10...2.30)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 2- 4- 3

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.20...12.30

Del.quantity cm3/ : 12.4...12.6

100 s: (12.2...12.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.5...6.7

Del.quantity cm3/ : 1.0...1.6

100 s: (0.7...1.8)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 124.0...126.0

1000 : (122.0...128.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 45...53

Testing:

1st rack travel in: 11.20

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1170...1200

3rd rack travel in: 4.00

Speed rpm : 1185...1215

4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 475...535

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.20...12.30
2nd speed rpm : 500
Rack travel in m: 13.10...13.20
3rd speed rpm : 910
Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 130.5...133.5
1000 s: (128.0...136.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...135.0
1000 s: (122.0...138.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

APPLICATION

Wheel loader

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,3 k 6
 Edition : 02.02.90
 Replaces : 20.5.88
 Test oil : ISO-4113
 Combination no. : 0 400 676 184
 Injection pump
 Pump designation : PE6A95D410RS2525
 EP type number : 0 410 696 987
 Governor
 Governor design. : RSV250...1200A5C2199
 -1L
 Governor no. : 0 420 232 450

Customer-spec. information
 Customer : DAF

Engine : DHTD 825

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 7.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.60...12.70

Del.quantity cm3/ : 10.9...11.0

100 s: (10.7...11.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 6.0...6.2

Del.quantity cm3/ : 0.7...1.1

100 s: (0.4...1.3)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 700

Del.quantity : 109.0...110.0

1000 : (107.0...112.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 51...59

Testing:

1st rack travel in: 11.60
Speed rpm : 1230...1240
2nd rack travel in: 4.00
Speed rpm : 1290...1320
3rd rack travel in: 4.00
Speed rpm : 1310...1340
4th rack travel in: 1490
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.6
Speed rpm : 250
Rack travel in mm : 6.00...6.20
Rack travel in mm : 2.00
Speed rpm : 470...530

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 13.40...13.50
2nd speed rpm : 400
Rack travel in m: 13.60...13.70
3rd speed rpm : 300
Rack travel in m: 13.80...14.30

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1000
Pressure hPa : 700
Rack travel mm : 12.60...12.70

Measurement

Speed 1/min : 1000

1st pressure hPa : -
Rack travel in m: 11.60...11.80
2nd pressure hPa : 300
Rack travel in m: 12.30...12.40
3rd pressure hPa : 280
Rack travel in m: 11.90...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm3/ : 85.5...86.5
1000 s: (83.5...88.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.60
Speed rpm : 1230...1240

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...140.0
1000 s: (127.0...143.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.00...6.20
Del.quantity cm3/ : 7.0...11.0
1000 s: (4.5...13.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : HAN 10,8 l
 Edition : 14.04.89
 Replaces : 10.7.88
 Test oil : ISO-4113
 Combination no. : 0 400 676 120
 Injection pump
 Pump designation : PE6A95D32ORS2557-1R
 EP type number : 0 410 696 980
 Governor
 Governor design. : RSV350...1100A8C2217
 -1R
 Governor no. : 0 420 233 220.

Customer-spec. information
 Customer : HANOMAG

Engine : D964 T/60E

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
 : (2.10...2.30)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.20...10.30

Del.quantity cm³/ : 8.6...8.8

100 s: (8.4...9.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.5...6.7

Del.quantity cm³/ : 1.0...1.6

100 s: (0.7...1.8)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 86.0...88.0

1000 : (84.0...90.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 9.20

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1170...1200

3rd rack travel in: 4.00

Speed rpm : 1190...1220

4th rack travel in: 1360
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 350
Rack travel in mm : 6.50...6.70
Rack travel in mm : 2.00
Speed rpm : 505...565

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.20...10.30
2nd speed rpm : 500
Rack travel in m: 11.30...11.40
3rd speed rpm : 905
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm3/ : 87.0...90.0
1000 s: (84.5...92.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

Cold-start testing of RSV governor
according to VDT-I-420/114.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 6,1 a 2
Edition : 15.03.90
Replaces : 12.9.86
Test oil : ISO-4113

Combination no. : 0 400 836 016

Injection pump
Pump designation : PES6A85D410/3RS2415
EP type number : 0 410 886 915
Governor
Governor design. : RQV750AB1004L
Governor no. : 0 420 212 093

Customer spec. information
Customer : KHD

Engine : BF6L913

1st version kW : 42.0
Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
: (1.85...2.05)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 720

Rack travel in mm : 11.20...11.30

Del.quantity cm3/ : 5.7...5.8

100 s: (5.5...6.0)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 250.0

Rack travel in mm : 6.8...7.0

Del.quantity cm3/ : 0.9...1.5

100 s: (0.7...1.7)

Spread cm3 : 0.2

100 s: (0.4)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 720

Del.quantity : 57.5...58.5

1000 : (55.5...60.5)

Spread cm3 : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 14...22

Testing:

1st rack travel in: 10.20

Speed rpm : 735...740

2nd rack travel in: 4.00

Speed rpm : 778...793

4th rack travel in: 830

Speed rpm : 0.00...1.00

START CUT-OUT

Speed 1/min : 660 (0)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 747
Del.quantity cm3/ : 38.0...40.0
1000 s: (35.5...42.5)
Speed rpm : 750
Del.quantity cm3/ : 35.0...37.0
1000 s: (32.5...39.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 735...740

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)

Remarks:

:

APPLICATION

Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,1p26
 Edition : 07.02.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 836 030
 Injection pump
 Pump designation : PES6A95D410LS2542-1
 EP type number : 0 410 896 912
 Governor
 Governor design. : RQV250...1100AB1177L
 Governor no. : 0 420 212 162

Customer-spec. information
 Customer : MAN

Engine : D2566 M/MF

1st version kW : 177.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60
 : (1.45...1.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.00...12.10

Del.quantity cm3/ : 12.4...12.6

100 s: (12.2...12.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 6.7...6.9

Del.quantity cm3/ : 0.9...1.4

100 s: (0.6...1.6)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.10...1.20

2nd speed rpm : 375
 travel mm : 2.10...2.40

3rd speed rpm : 500
 travel mm : 3.50...3.80

4th speed rpm : 1200
 travel mm : 9.60...9.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1140

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 124.5...126.5

1000 : (122.5...128.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 44...52

Testing:

1st rack travel in: 11.00
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19

Testing:

Speed rpm : 100
Minimum rack trave: 8.20
Speed rpm : 250
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 345...415

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.00...12.10
2nd speed rpm : 500
Rack travel in m: 12.00...12.20

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm3/ : 107.5...113.5
1000 s: (105.0...116.0)
Speed rpm : 750
Del.quantity cm3/ : 113.0...116.0
1000 s: (110.5...118.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 122.0...132.0
1000 s: (119.0...135.0)
Rack travel in mm : 15.50...15.90

Remarks:

:

Set idle stop at 250 min -1 to a
control-rod travel of 6.8 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 6,1 t 2
 Edition : 14.04.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 836 038
 Injection pump
 Pump designation : PES6A85D410/3RS2761
 EP type number : 0 410 886 895
 Governor
 Governor design. : RQ300/1250AB1244L
 Governor no. : 0 420 200 112

Customer-spec. information
 Customer : KHD

Engine : BF6L913

1st version kw : 118.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
 : (2.45...2.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.30...12.40

Del.quantity cm3/ : 8.7...8.8

100 s: (8.5...9.0)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 300.0

Rack travel in mm : 7.3...7.5

Del.quantity cm3/ : 0.8...1.4

100 s: (0.6...1.6)

Spread cm3 : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 14.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 700

Del.quantity : 87.5...88.5

1000 : (85.5...90.5)

Spread cm3 : 3.00

1000 : (5.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 1150

Rack travel in mm : 15.5

Testing:

1st rack travel in: 11.30

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1355...1385

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.4

Testing:

Speed rpm : 100
Minimum rack travel : 8.90
Speed rpm : 300
Rack travel in mm : 7.30...7.50
Rack travel in mm : 2.00
Speed rpm : 480...520

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 12.30...12.40
3rd speed rpm : 850
Rack travel in m: 13.60...13.70
4th speed rpm : 1005
Rack travel in m: 12.60...12.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.30...11.40

Measurement

Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 11.60...11.70
3rd pressure hPa : 700
Rack travel in m: 12.70...12.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 750
Del.quantity cm³/ : 88.5...90.5
1000 s: (86.0...93.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 62.5...63.5
1000 s: (60.5...65.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.30

N20

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 110.0...120.0
1000 s: (107.0...123.0)
Rack travel in mm : 17.00...17.40

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 b 9
Edition : 02.05.90
Replaces : 28.9.89
Test oil : ISO-4113

Combination no. : 0 400 836 041

Injection pump
Pump designation : PES6A100D320/3RS2691
-2

EP type number : 9 410 230 028

Governor

Governor design. : RQV350...1100AB1227-
1R

Governer no. : 0 420 213 113

Customer-spec. information

Customer : C.D.C.

Engine : 6 CT 8.3

1st version kW : 157.0

Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.60...12.70

Del.quantity cm³/ : 12.6...12.8

100 s: (12.4...13.0)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.6

100 s: (0.8)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1100

travel mm : 7.10...7.30

2nd speed rpm : 1150

travel mm : 7.50...7.90

3rd speed rpm : 1290

travel mm : 8.90...9.50

4th speed rpm : 350

travel mm : 1.10...1.50

5th speed rpm : 600

travel mm : 2.80...3.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del.quantity : 126.5...128.5

1000 : (124.5...130.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 57...65

Testing:

1st rack travel in: 11.60

Speed rpm : 1145...1155

2nd rack travel in: 4.00

Speed rpm : 1255...1285

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 10...18

Speed rpm : 350

Rack travel in mm : 5.40...5.60

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 900

Rack travel mm : 12.60...12.70

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.10...10.30

2nd pressure hPa : 405

Rack travel in m: 10.90...11.00

3rd pressure hPa : 535

Rack travel in m: 11.80...12.20

START CUT-OUT

Speed 1/min : 260 (280)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 79.0...83.0

1000 s: (77.0...85.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60

Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 165.0...185.0

1000 s: (160.0...190.0)

Rack travel in mm : 15.30...15.70

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.40...5.60

Del.quantity cm3/ : 18.0...22.0

1000 s: (15.5...24.5)

Spread cm3 : 6.00

1000 s: (8.00)

Remarks:

: C.D.C. # 3914299

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark is at 7° after
start of delivery.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 b10
 Edition : 01.02.90
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 836 043
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 -2
 EP type number : 9 410 230 028
 Governor
 Governor design. : RQV350...1200AB1245R
 Governor no. : 0 420 213 118

Customer-spec. information
 Customer : C.D.C

Engine : 6CT830

1st version kW : 157.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 9 681 271 029

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 10.80...10.90

Del.quantity cm3/ : 11.3...11.5

100 s: (11.1...11.7)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 4.7...4.9
 Del.quantity cm3/ : 1.6...2.0
 100 s: (1.3...2.2)
 Spread cm3 : 0.6
 100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 0.00...0.20
 2nd speed rpm : 350
 travel mm : 1.00...1.50
 3rd speed rpm : 450
 travel mm : 1.90...2.40
 4th speed rpm : 1200
 travel mm : 6.90...6.90
 5th speed rpm : 1350
 travel mm : 8.15...8.65

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Del.quantity : 113.0...115.0
 1000 : (111.0...117.0)
 Spread cm3 : 4.00
 1000 : (6.50)

RATED SPEED

1st version
Control lever
position degrees: 42...50

Testing:
1st rack travel in: 9.80
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1315...1345
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...16
Speed rpm : 350
Rack travel in mm : 4.70...4.90

START CUT-OUT

Speed 1/min : 290 (300)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.80
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...170.0
1000 s: (145.0...175.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.70...4.90
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3917098

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 3,8 q 1
 Edition : 10.02.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 844 051
 Injection pump
 Pump designation : PES4A90D410RS2294
 EP type number : 0 410 894 011
 Governor
 Governor design. : RQV300...1425AB781L
 Governor no. : 0 420 212 046

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM314

1st version kW : 64.0
 Rated speed : 2850

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
 : (2.10...2.30)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.70...9.80

Del.quantity cm3/ : 6.3...6.4

100 s: (6.1...6.6)

Spread cm3 : 0.3

100 s: (0.4)

2nd speed rpm : 300.0

Rack travel in mm : 7.5...7.7

Del.quantity cm3/ : 0.9...1.5

100 s: (0.7...1.7)

Spread cm3 : 0.2

100 s: (0.4)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1460

travel mm : 8.40...8.60

2nd speed rpm : 950

travel mm : 5.20...5.50

3rd speed rpm : 775

travel mm : 4.10...4.60

4th speed rpm : 550

travel mm : 2.70...3.00

5th speed rpm : 300

travel mm : 0.70...1.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1420

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 63.5...64.5

1000 : (61.5...66.5)

Spread cm3 : 3.00

1000 : (4.50)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:
1st rack travel in: 8.70
Speed rpm : 1460...1470
2nd rack travel in: 4.00
Speed rpm : 1540...1570

LOW IDLE 1
Control lever
position degrees: 11...19

Testing:
Speed rpm : 200
Minimum rack travel: 8.20
Speed rpm : 300
Rack travel in mm : 7.50...7.70

CONSTANT REGULATION
Speed rpm : 350...500

START CUT-OUT

Speed 1/min : 220 (240)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.70
Speed rpm : 1460...1470

INTERMEDIATE RATED SPEED

Control lever
position degrees: 113...121
Rack travel in mm : 8.70
Speed rpm : 1295...1305
Rack travel in mm : 4.00
Speed rpm : 1395...1425

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 71.0...81.0
1000 s: (68.0...84.0)
Rack travel in mm : 13.70...14.30

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 9,6 k 6
Edition : 03.11.89
Replaces : 11.11.88
Test oil : ISO-4113

Combination no. : 0 400 846 432

Injection pump
Pump designation : PES6A95D410RS2416
EP type number : 0 410 896 961
Governor
Governor design. : RQ750AB1240L
Governor no. : 0 420 200 110

Customer-spec. information
Customer : KHD

Engine : F6L413FR

1st version kW : 89.0
Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X-600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
: (1.85...2.05)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.40...10.50

Del.quantity cm3/ : 10.1...10.3

100 s: (9.9...10.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 5.3...5.5

Del.quantity cm3/ : 1.0...1.6

100 s: (0.7...1.8)

Spread cm3 : 0.3

100 s: (0.5)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 101.0...103.0

1000 : (99.0...105.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Testing:

1st rack travel in: 9.40

Speed rpm : 750...755

2nd rack travel in: 3.70

Speed rpm : 780...785

TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 700

Rack travel in m: 10.40...10.50

2nd speed rpm : 500

Rack travel in m: 10.40...10.60

START CUT-OUT

Speed 1/min : 640 (660)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 12.90...13.20

Remarks:

:

APPLICATION

Generator set